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Bureau of Land Management

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December 2025

Greater Sage-Grouse Rangewide Planning

Record of Decision and Approved Resource Management Plan Amendment for Nevada and Northeastern California

Appendix 1

Tables and Maps

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Appendix 1. Tables and Maps

1.1 TABLE

TABLE 1. HABITAT MANAGEMENT AREA ACREAGE.

Acreage estimates include BLM administered surface acres (BLM Surface) calculated in International Acres (rounded to nearest whole) in projection NAD 1983 UTM Zone 11.

Habitat Management Area	BLM Surface
Priority Habitat Management Area (PHMA)	9,125,656
General Habitat Management Area (GHMA)	2,186,846
Other Habitat Management Area (OHMA)	3,822,033
Total	15,134,535

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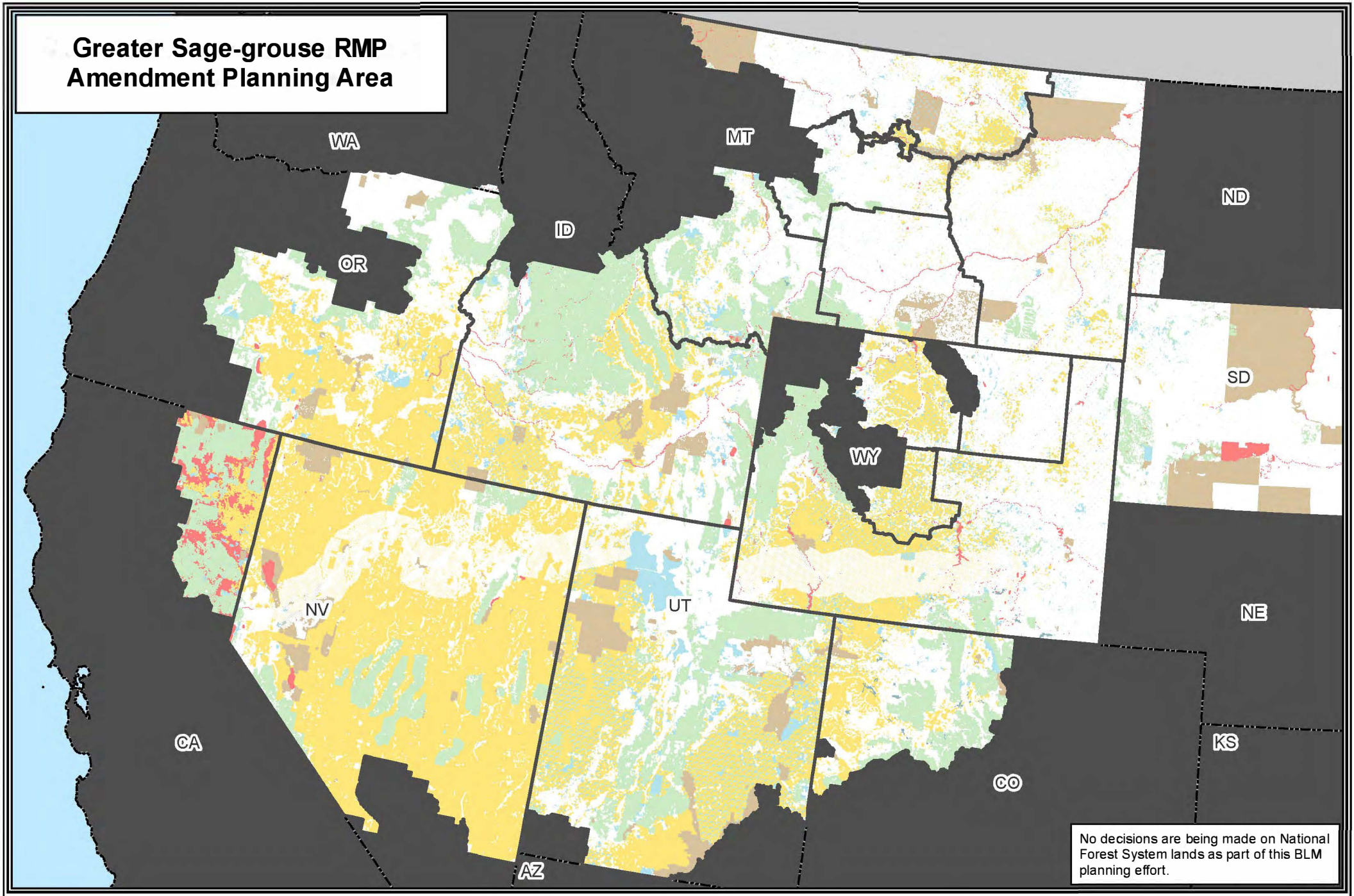


Map 1

Legend

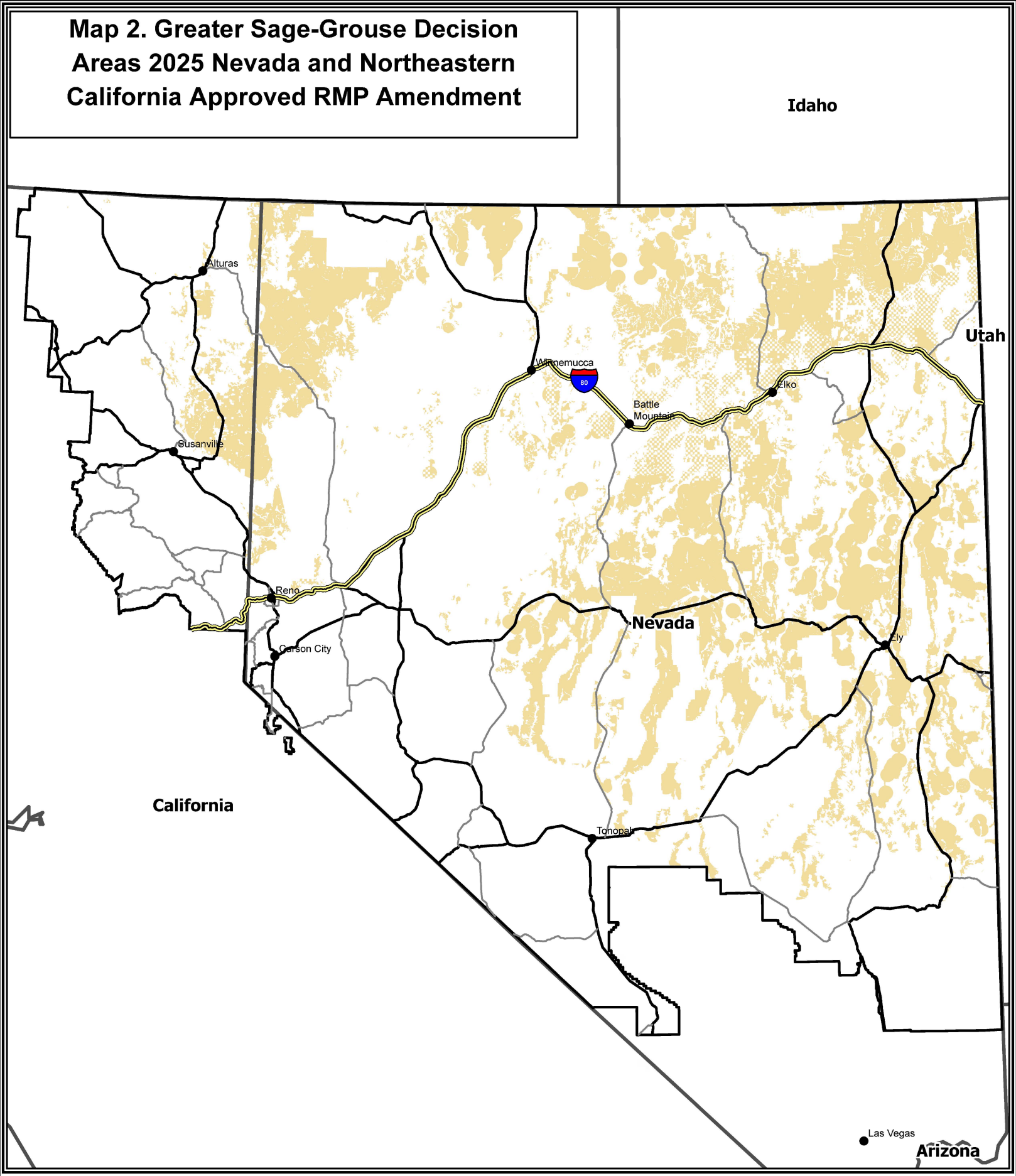
- Planning Area Extent
- State Boundaries
- Bureau of Land Management
- US Forest Service
- Other Federal Lands
- State
- Private
- Local Government
- Other / Unknown

N W E S

0 25 50 100 Miles

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

Map 2. Greater Sage-Grouse Decision Areas 2025 Nevada and Northeastern California Approved RMP Amendment



Legend

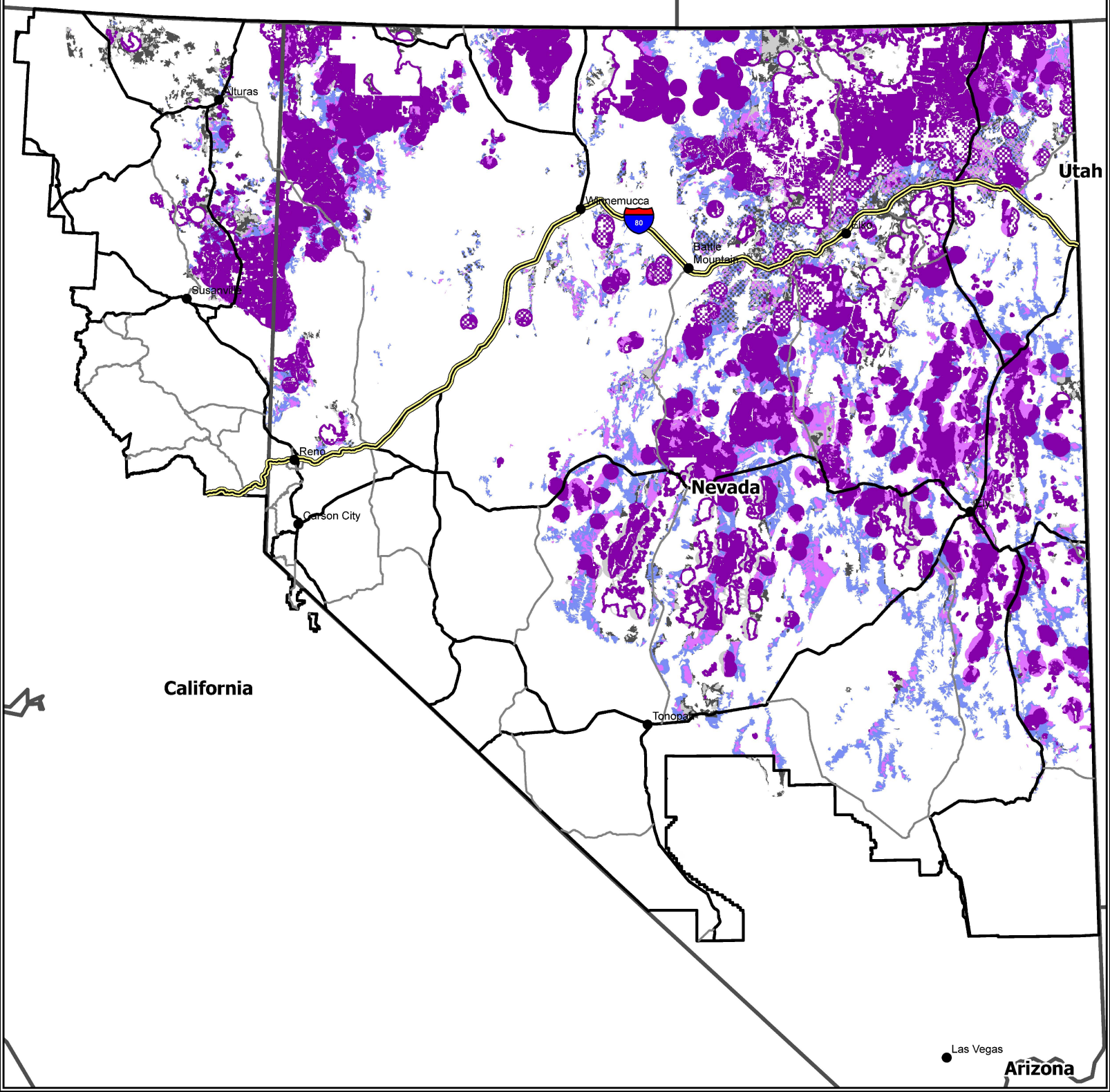
- Decision Area
- NVCA Planning Area
- State Boundary

N W E S

0 25 50 Miles

This map is provided for illustrative purposes. For the applicable management direction, see the 2025 NVCA Approved RMP Amendment. No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

Map 3. Greater Sage-Grouse Habitat Management Areas
2025 Nevada and Northeastern California Approved RMP Amendment



Legend

- NVCA Planning Area
- State Boundary
- PHMA Outside BLM Decision Area
- GHMA Outside BLM Decision Area
- OHMA Outside BLM Decision Area

HMA on BLM Administered Lands

- PHMA
- GHMA
- OHMA

N W E S

0 25 50 Miles

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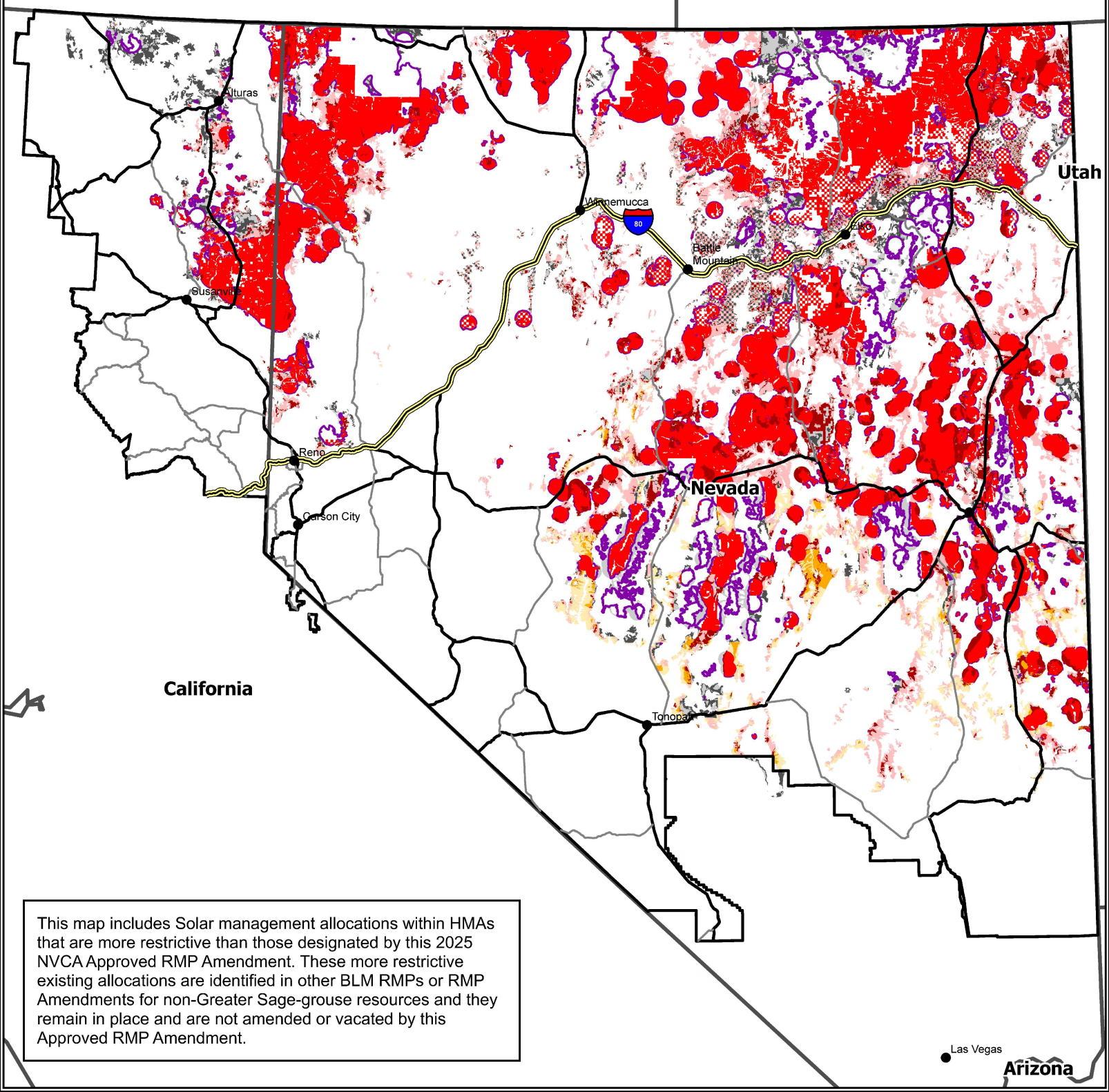
Map 4. Solar Energy and Greater Sage-Grouse Habitat Management Areas 2025 Nevada and Northeastern California Approved RMP Amendment



This map includes Solar management allocations within HMAs that are more restrictive than those designated by this 2025 NVCA Approved RMP Amendment. These more restrictive existing allocations are identified in other BLM RMPs or RMP Amendments for non-Greater Sage-grouse resources and they remain in place and are not amended or vacated by this Approved RMP Amendment.

Legend

PHMA GHMA OHMA

- Solar Open
- Solar Avoidance
- Solar Exclusion
- NVCA Planning Area
- State Boundary
- PHMA Outside BLM Decision Area
- GHMA Outside BLM Decision Area

N W E S

0 25 50 Miles

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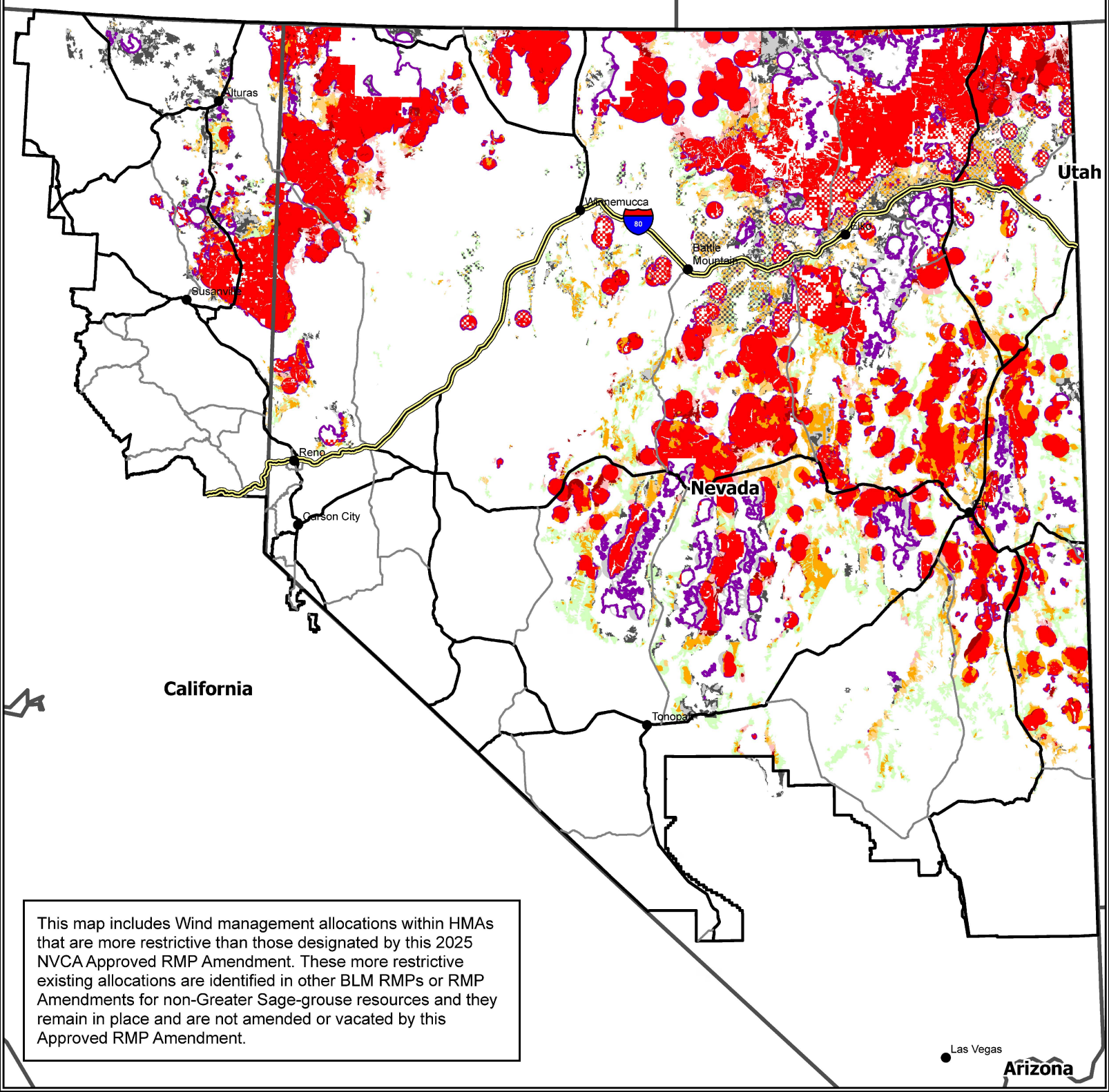
Map 5. Wind Energy and Greater Sage-Grouse Habitat Management Areas 2025 Nevada and Northeastern California Approved RMP Amendment



This map includes Wind management allocations within HMAs that are more restrictive than those designated by this 2025 NVCA Approved RMP Amendment. These more restrictive existing allocations are identified in other BLM RMPs or RMP Amendments for non-Greater Sage-grouse resources and they remain in place and are not amended or vacated by this Approved RMP Amendment.

Legend

PHMA GHMA OHMA

- Wind Open
- Wind Avoidance
- Wind Exclusion
- NVCA Planning Area
- State Boundary
- PHMA Outside BLM Decision Area
- GHMA Outside BLM Decision Area

N W E S

0 25 50 Miles

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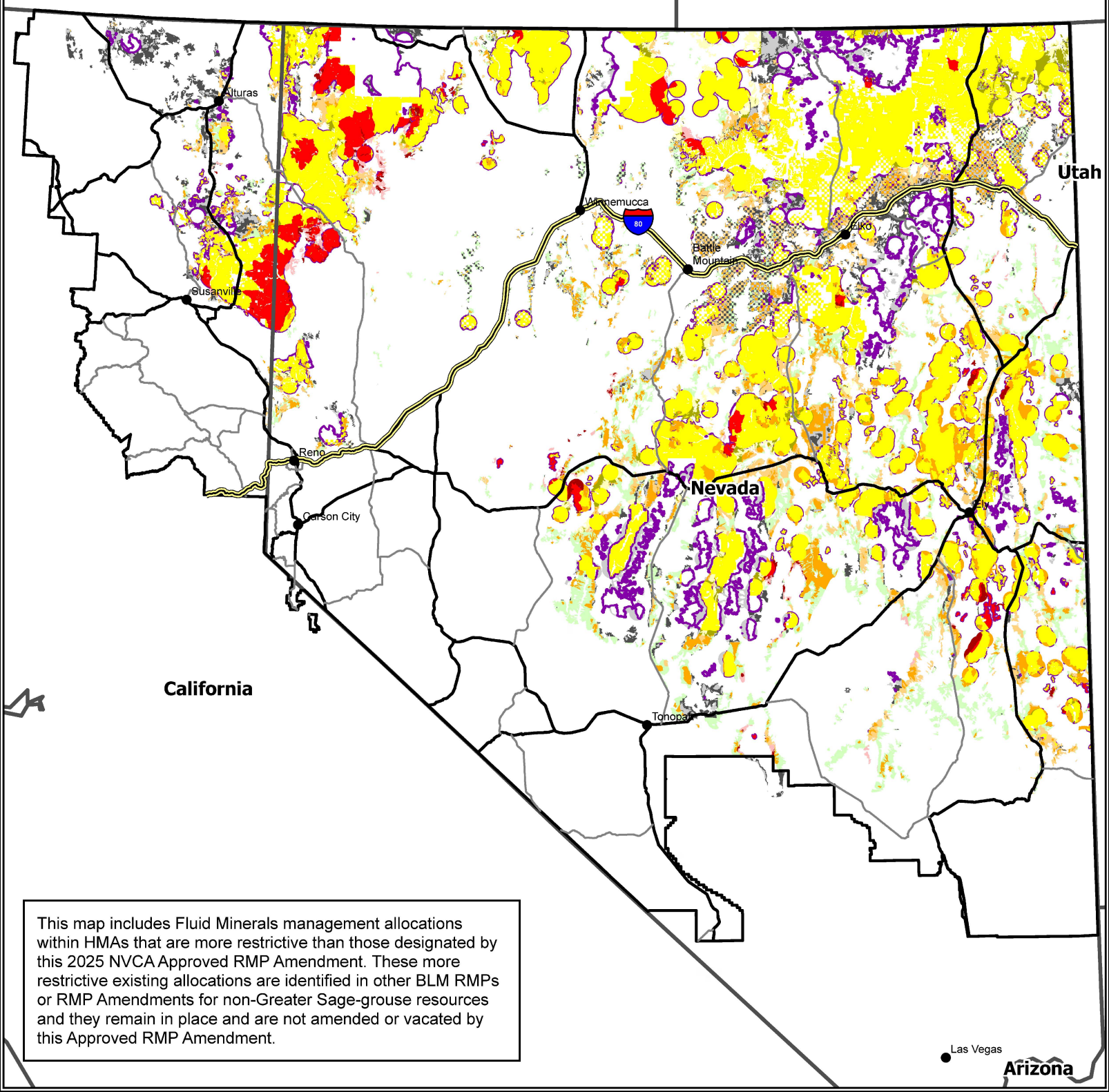
Map 6. Fluid Minerals (Oil, Gas, and Geothermal) and Greater Sage-Grouse Habitat Management Areas
2025 Nevada and Northeastern California Approved RMP Amendment



This map includes Fluid Minerals management allocations within HMAs that are more restrictive than those designated by this 2025 NVCA Approved RMP Amendment. These more restrictive existing allocations are identified in other BLM RMPs or RMP Amendments for non-Greater Sage-grouse resources and they remain in place and are not amended or vacated by this Approved RMP Amendment.

Legend

PHMA GHMA OHMA

- Open Standard Stipulations
- Open Moderate Stipulations
- Open Major Stipulations
- Closed

- NVCA Planning Area
- State Boundary
- PHMA Outside BLM Decision Area
- GHMA Outside BLM Decision Area

N W E S

0 25 50 Miles

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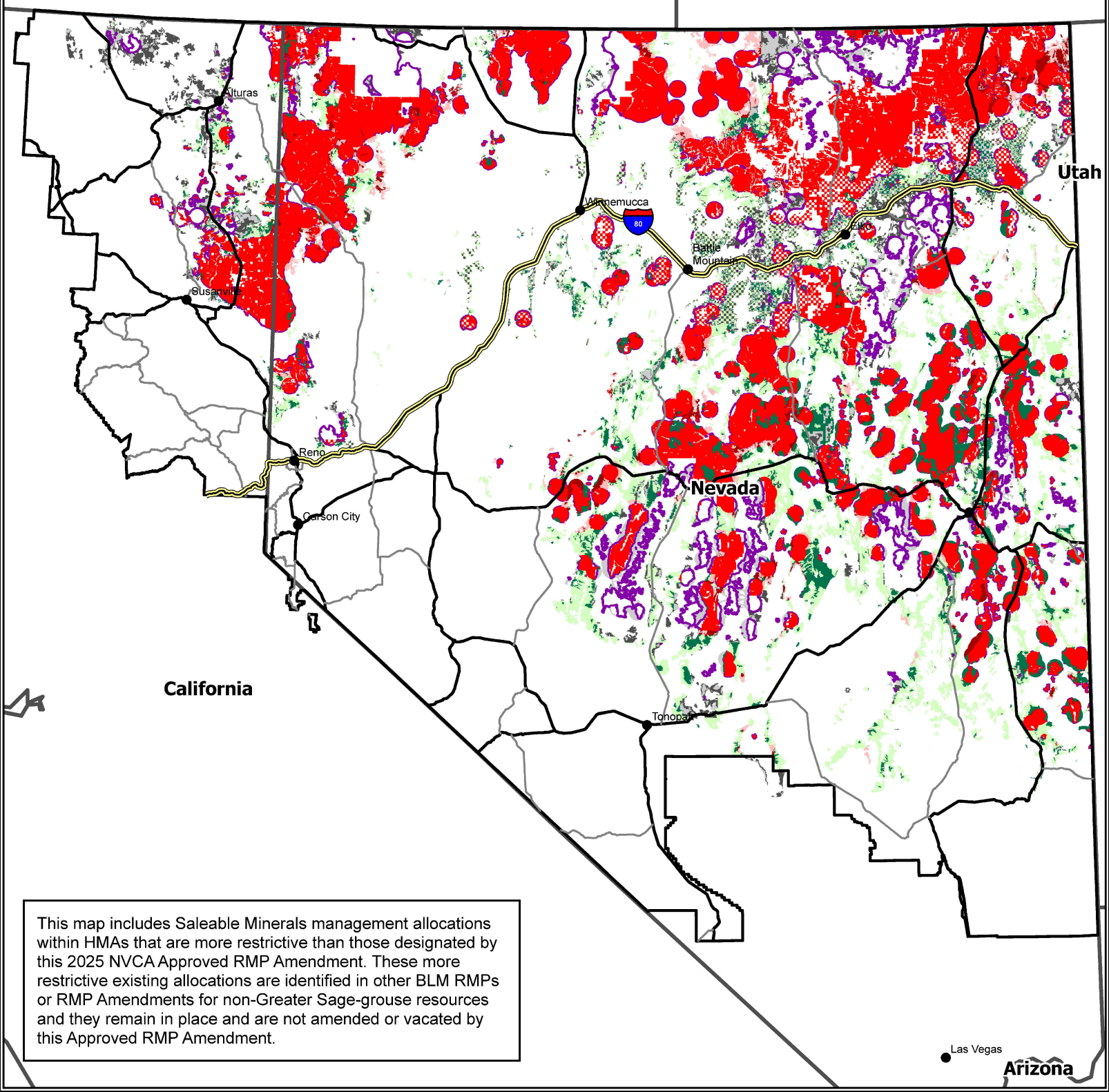
Map 7. Salable Minerals and Greater Sage-Grouse Habitat Management Areas 2025 Nevada and Northeastern California Approved RMP Amendment



This map includes Saleable Minerals management allocations within HMAs that are more restrictive than those designated by this 2025 NVCA Approved RMP Amendment. These more restrictive existing allocations are identified in other BLM RMPs or RMP Amendments for non-Greater Sage-grouse resources and they remain in place and are not amended or vacated by this Approved RMP Amendment.

Legend

PHMA GHMA OHMA

- Salable Open
- Salable Exclusion
- NVCA Planning Area
- State Boundary
- PHMA Outside BLM Decision Area
- GHMA Outside BLM Decision Area

N W E S

0 25 50 Miles

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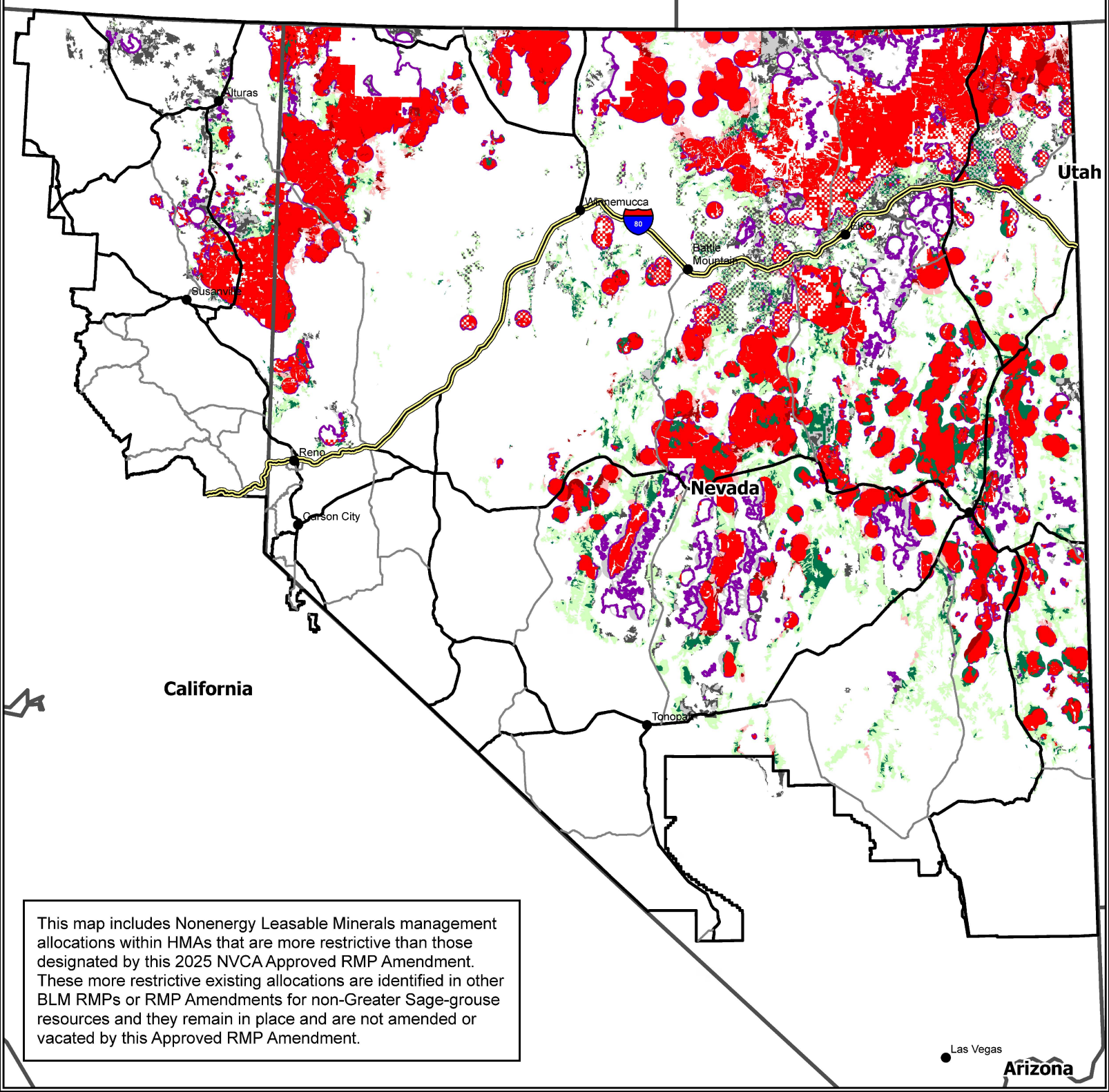
Map 8. Nonenergy Leasable and Greater Sage-Grouse Habitat Management Areas 2025 Nevada and Northeastern California Approved RMP Amendment



This map includes Nonenergy Leasable Minerals management allocations within HMAs that are more restrictive than those designated by this 2025 NVCA Approved RMP Amendment. These more restrictive existing allocations are identified in other BLM RMPs or RMP Amendments for non-Greater Sage-grouse resources and they remain in place and are not amended or vacated by this Approved RMP Amendment.

Legend

PHMA GHMA OHMA

Nonenergy Open

Nonenergy Closed

NVCA Planning Area

State Boundary

PHMA Outside BLM Decision Area

GHMA Outside BLM Decision Area

N W E S

0 25 50 Miles

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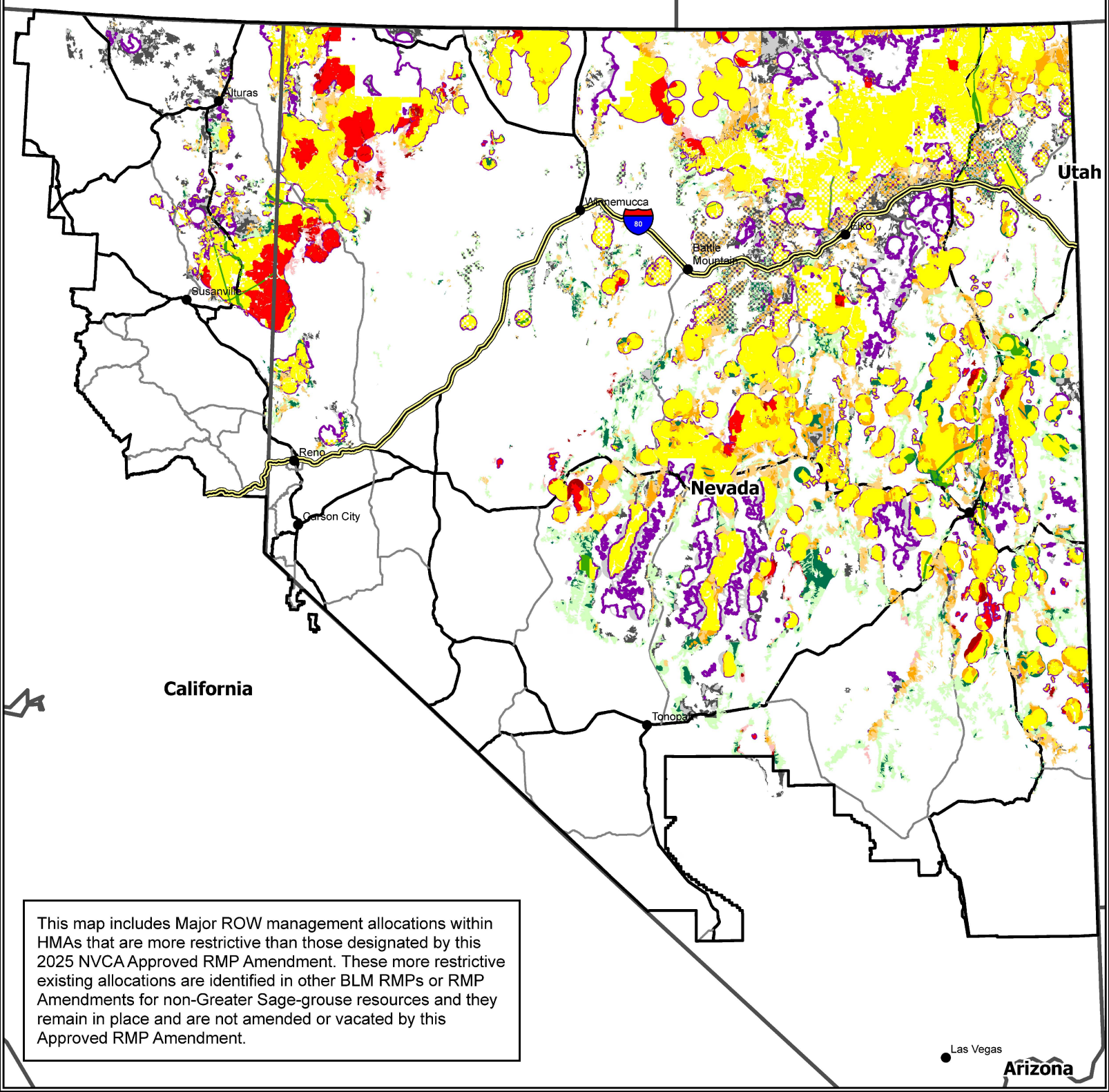
Map 9. Major ROWs and Greater Sage-Grouse Habitat Management Areas 2025 Nevada and Northeastern California Approved RMP Amendment



This map includes Major ROW management allocations within HMAs that are more restrictive than those designated by this 2025 NVCA Approved RMP Amendment. These more restrictive existing allocations are identified in other BLM RMPs or RMP Amendments for non-Greater Sage-grouse resources and they remain in place and are not amended or vacated by this Approved RMP Amendment.

Legend

PHMA GHMA OHMA

- ROW Open
- ROW Avoidance
- ROW Exclusion
- NVCA Planning Area
- State Boundary
- PHMA Outside BLM Decision Area
- GHMA Outside BLM Decision Area

N W E S

0 25 50 Miles

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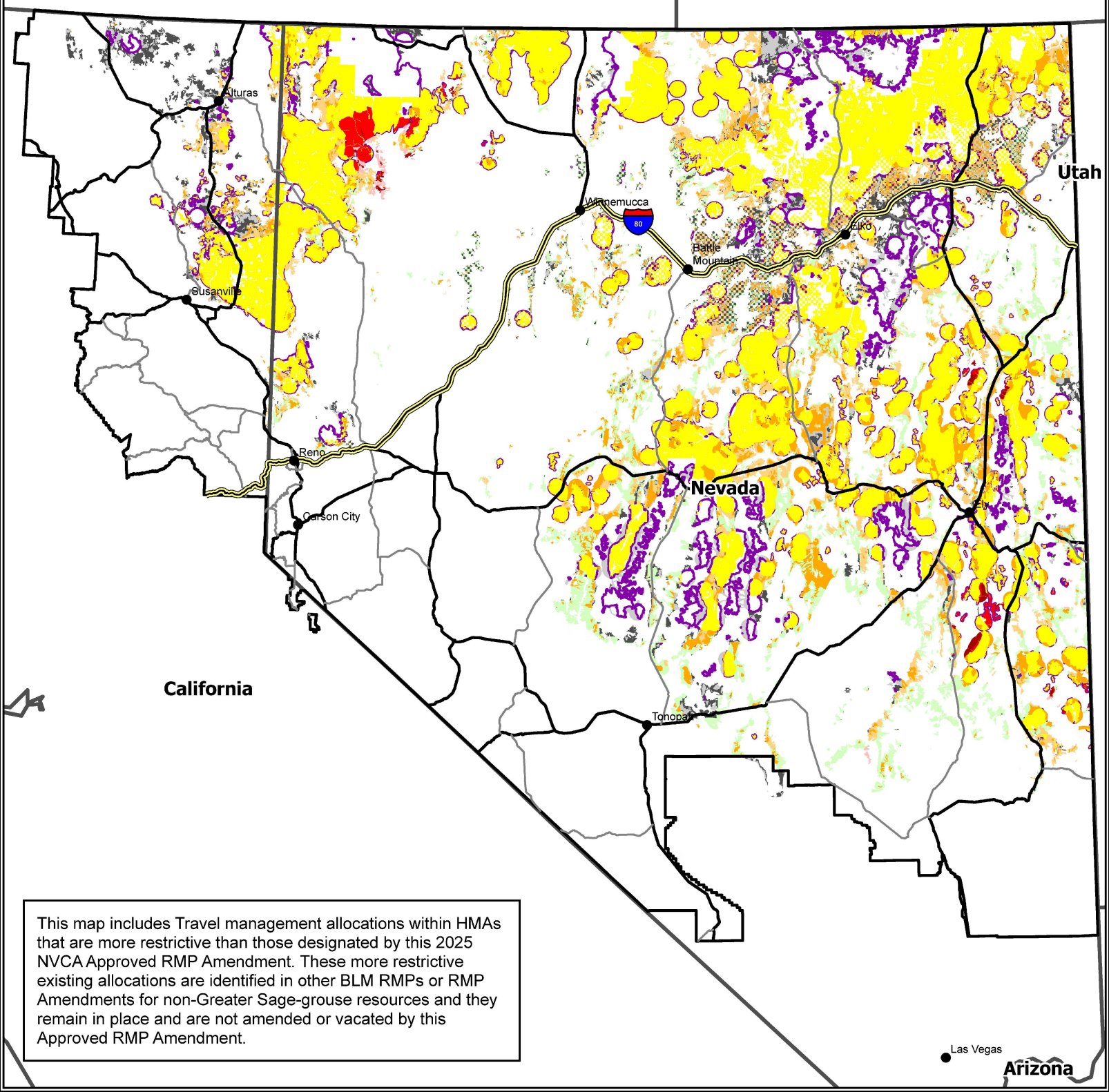
Map 10. Travel Management and Greater Sage-Grouse Habitat Management Areas 2025 Nevada and Northeastern California Approved RMP Amendment



This map includes Travel management allocations within HMAs that are more restrictive than those designated by this 2025 NVCA Approved RMP Amendment. These more restrictive existing allocations are identified in other BLM RMPs or RMP Amendments for non-Greater Sage-grouse resources and they remain in place and are not amended or vacated by this Approved RMP Amendment.

Legend

PHMA GHMA OHMA

- Travel Open
- Travel Limited
- Travel Closed

- PHMA with Limited Exceptions
- NVCA Planning Area
- State Boundary
- PHMA Outside BLM Decision Area
- GHMA Outside BLM Decision Area

N W E S

0 25 50 Miles

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Appendix 2

Comparison of Prior Greater Sage-Grouse RMP Management Direction with Approved RMP Amendment

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Appendix 2. Comparison of Prior Greater Sage-Grouse RMP Management Direction with Approved RMP Amendment

NEVADA AND CALIFORNIA GREATER SAGE-GROUSE RMP AMENDMENTS

This appendix presents the Greater Sage-grouse (GRSG) approved RMP amendment language from the 2015 and 2019 records of decision and this 2025 Approved RMP Amendment and Record of Decision for Nevada and California. The tables below note which goals, objectives, appendices, and management decisions/actions are amended by this Approved RMP Amendment (RMPA), either partially or completely, and which existing decisions are not be amended at all. The types of change to existing management direction from the Approved RMPA include: no change, partial revision, complete revision, and new direction.

Table 1. GSRG RMP Management Direction in Nevada/California

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
SPECIAL STATUS SPECIES (SSS)	***SPECIAL STATUS SPECIES (SSS)***	—
GOAL:	**GOAL:**	—
Goal SSS 1: Conserve, enhance, and restore the sagebrush ecosystem upon which GRSG populations depend in an effort to maintain and/or increase their abundance and distribution, in cooperation with other conservation partners.	No changes made.	Completely Revised.
Objectives	—	—
Objective SSS 1: Manage land resource uses to meet GRSG habitat objectives, as described in Table 2-2. The habitat objectives will be used to evaluate management actions that are proposed in GRSG habitat. Managing for habitat objectives will ensure that habitat conditions are maintained if they are currently meeting objectives or if habitat conditions move toward these objectives in the event that current conditions do not meet these objectives.	No changes made.	Completely Revised.

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
Objective SSS 2: Maintain or improve connectivity between, to, and in PHMAs and GHMAs to promote movement and genetic diversity for GRSG population persistence and expansion.	No changes made.	No change (same as 2015).
Objective SSS 3: Identify and implement GRSG conservation actions that can augment, enhance, or integrate program conservation measures established in agency and state land use and policy plans, to the extent consistent with applicable law.	No changes made.	No change (same as 2015).
Objective SSS 4: In PHMAs and GHMAs, apply the concept of "avoid, minimize, and compensatory mitigation" for all human disturbance in areas not already excluded or closed, so as to avoid adverse effects on GRSG and its habitat. The first priority will be to avoid new disturbance; where this is not feasible, the second priority will be to minimize and mitigate any new disturbance (Appendices F and I).	**Objective SSS 4:** When authorizing third-party actions in designated GRSG HMAs, the BLM will apply avoidance and minimization measures to reduce impacts, while seeking to achieve the planning-level goals and objectives for GRSG and its habitat, consistent with valid existing rights and applicable law. Management will be consistent with the GRSG goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. Specifically, the BLM will authorize uses of the public lands that are consistent with the policy in BLM Manual 6840 and therefore "minimize or eliminate threats affecting the status of [GRSG]" or "improve the condition of [GRSG] habitat."	No change (same as 2019).

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
Management Decisions (MD):	**Management Decisions (MD):**	—
MD SSS 1: In PHMAs and GHMAs, work with the proponent/applicant, whether in accordance with a valid existing right or not, and use the following screening criteria to avoid effects of the proposed human activity on GRSG habitat[1] A. First priority—locate project/activity outside PHMAs and GHMAs B. Second priority—if the project/activity cannot be placed outside PHMAs and GHMAs, locate the surface-disturbing activities in non-habitat areas first, then in the least suitable habitat for GRSG 1. In non-habitat, ensure the project/activity will not create a barrier to movement or connectivity between seasonal habitats and populations C. Third priority—collocate the project/activity next to or in the footprint of existing infrastructure	**MD SSS 1:** In PHMAs and GHMAs, work with the proponent/applicant, whether in accordance with a valid existing right or not, and use the following screening criteria to avoid effects of the proposed human activity on GRSG habitat[1]: A. First priority—locate project/activity outside PHMAs and GHMAs; B. Second priority—if the project/activity cannot be placed outside PHMAs and GHMAs, locate the surface-disturbing activities in non-habitat areas first, then in the least suitable habitat for GRSG. 1-In non-habitat, ensure the project/activity will not create a barrier to movement or connectivity between GRSG seasonal habitats and populations; C. Third priority—collocate the project/activity next to or in the footprint of existing infrastructure.	Partially Revised.
MD SSS 2: In PHMAs, the following conditions will be met in order to avoid, minimize, and mitigate any effects on GRSG and its habitat from the project/activity:[2] A. Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of 1) biologically significant units (BSUs; total PHMA area associated with a GRSG population area (see Appendix A; Figure 2-2)) and 2) in a proposed project analysis area. See Appendix E (Disturbance Cap Guidance) for additional information on implementing the disturbance cap, including what is and is not considered disturbance and how to calculate the proposed project analysis area, as follows:	**MD SSS 2:** In PHMAs, the following conditions will be met in order to avoid and minimize impacts to GRSG and its habitat. The BLM will consider compensatory mitigation actions only when offered voluntarily by a project proponent; when required by law other than FLPMA or as a component of compliance with a States' mitigation plan, program, or authority, such as required by the State of Nevada Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). A. Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of: 1) biologically significant units (BSUs; total PHMA associated with a GRSG population area [see Appendix A;	**MD SSS 2A:** Completely Revised.

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
1. If the 3 percent human disturbance cap is exceeded on all lands (regardless of ownership) in PHMAs in any given BSU, then no further discrete human disturbances (subject to applicable laws and regulations, such as the 1872 Mining Law, as amended, and valid existing rights) will be permitted, by BLM within GRSG PHMA in any given BSU until the disturbance has been reduced to less than the cap (see Nevada exception under MD SSS 2 a. 3. Appendix E). 2. If the 3 percent disturbance cap is exceeded on all lands (regardless of land ownership) within a proposed project analysis area in a PHMA, then no further anthropogenic disturbance will be permitted by BLM until disturbance in the proposed project analysis area has been reduced to maintain the area under the cap (subject to applicable laws and regulations, such as the 1872 Mining Law, as amended, valid existing rights; see Nevada exception under MD SSS 2 a. 3. Appendix E). a. For BLM land in the state of Nevada only, the following disturbance management protocol (DMP) is intended to provide for a 3 percent limitation on disturbance, except in situations where a biological analysis indicates a net conservation gain to the species. • Such discretionary activities that would cause disturbances in excess of 3 percent at the project or BSU scale (see Appendix E) will be prohibited, unless a technical team described below determines that new or site-specific information indicates the project can be	Figure 2-2]) and 2) in a proposed project analysis area. See Appendix F (Disturbance Cap Guidance) for additional information on implementing the disturbance cap, including what is and is not considered disturbance and how to calculate the proposed project analysis area, as follows: 1. If the 3 percent human disturbance cap is exceeded on all lands (regardless of ownership) in PHMAs in any given BSU, then no further discrete human disturbances (subject to applicable laws and regulations, such as the 1872 Mining Law, as amended, and valid existing rights) will be permitted, by the BLM within PHMA in any given BSU until the disturbance has been reduced to less than the cap (see Nevada exception under MD SSS 2 A. 2a). 2. If the 3 percent disturbance cap is exceeded on all lands (regardless of land ownership) within a proposed project analysis area in PHMA, then no further anthropogenic disturbance will be permitted by the BLM until disturbance in the proposed project analysis area has been reduced to maintain the area under the cap (subject to applicable laws and regulations, such as the 1872 Mining Law, as amended, valid existing rights; see Nevada exception under MD SSS 2 A. 2a.). a. For BLM land in the state of Nevada only, the following disturbance management protocol is intended to provide for a 3 percent limitation on disturbance, except in situations where a net conservation gain to the species is achieved as a component of compliance with a state mitigation plan, program, or authority,	*(see above)*

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
• modified to result in a net conservation gain at the BSU level. Factors considered by the team will include GRSG abundance and trends, habitat amount and quality, extent of project disturbance, location and density of existing disturbance, project design options and other biological factors. • Any exceptions to the 3 percent disturbance limitation may be approved by the Authorized Officer only with the concurrence of the State Director. The Authorized Officer may not grant an exception unless the NDOW, the USFWS, and the BLM unanimously find that the proposed action satisfies the conditions stated in the above paragraph. Such finding shall initially be made by the technical team, which consists of a field biologist or other GRSG experts from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the BLM State Director, USFWS State Ecological Services Director and NDOW Director for final resolution. In the event their finding is not unanimous, the exception will not be granted (Appendix E). 3. For BLM land in the state of California only, subject to applicable laws and regulations and valid existing rights, if the average density of one energy and mining facility per 640 acres (the density cap) is exceeded on all lands (regardless of land ownership) in the PHMA within a proposed project	such as required by the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). 3. For BLM land in the state of California only, subject to applicable laws and regulations and valid existing rights, if the average density of one energy and mining facility per 640 acres (the density cap) is exceeded on all lands (regardless of land ownership) in PHMA within a proposed project analysis area, then no further disturbance from energy or mining facilities will be permitted by the BLM: 1) until disturbance in the proposed project analysis area has been reduced to maintain the limit under the cap; or 2) unless the energy or mining facility is co-located into an existing disturbed area. Energy and mining facilities to which this action applies are: • Oil and gas wells and development facilities. • Wind towers • Geothermal wells/developments, and • Active locatable, leasable, and salable developments. 4. For proposed projects to be located, within existing designated utility corridors, the 3 percent disturbance cap may be exceeded at the project scale if a net conservation gain to the species will be achieved, as a component of compliance with a State's mitigation plan, program, or authority, such as required by the State of Nevada Executive Order 2018-32 (and any future regulations adopted by the State of Nevada	*(see above)*

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
analysis area, then no further disturbance from energy or mining facilities will be permitted by BLM: (1) until disturbance in the proposed project analysis area has been reduced to maintain the limit under the cap; or (2) unless the energy or mining facility is co-located into an existing disturbed area. Energy and mining facilities to which this action applies are: • Oil and gas wells and development facilities. • Wind towers • Geothermal wells/developments, and • Active locatable, leasable, and salable developments. 4. For proposed projects to be located, within existing designated utility corridors, the 3% disturbance cap may be exceeded at the project scale if the site specific NEPA analysis indicates that a net conservation gain to the species will be achieved. This exception is limited to projects which fulfill the use for which the corridors were designated (ex., transmission lines, pipelines) and the designated width of a corridor will not be exceeded as a result of any project co-location.	regarding compensatory mitigation, consistent with federal law). This exception is limited to projects which fulfill the use for which the corridors were designated (e.g., transmission lines, pipelines, etc.) and the designated width of a corridor will not be exceeded as a result of any project co-location.	*(see above)*

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
B. In PHMA, in undertaking BLM management actions, and consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the species, including accounting for any uncertainty associated with the effectiveness of such mitigation. The project/activity with associated mitigation (such as the use of the State of Nevada Conservation Credit System) will result in an overall net conservation gain to GRSG (see Appendix F).	B. See **MD MIT 1**.	**MD SSS 2B:** No change (same as 2019).
C. Authorized/permitted activities are implemented by adhering to the RDFs described in Appendix C, consistent with applicable law. At the site-specific scale, if an RDF is not implemented, at least one of the following must be demonstrated in the NEPA analysis associated with the project/activity: 1. A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to the site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable. 2. An alternative RDF is determined to provide equal or better protection for GRSG or its habitat. 3. A specific RDF will provide no additional protection to GRSG or its habitat.	C. Authorized/permitted activities are implemented by adhering to the Required Design Features (RDFs) described in Appendix C, consistent with applicable law. At the site-specific scale, if an RDF is not implemented, at least one of the following must be demonstrated in the NEPA analysis associated with the project/activity: 1. A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to the site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable. 2. An alternative RDF is determined to provide equal or better protection for GRSG or its habitat. 3. A specific RDF will provide no additional protection to GRSG or its habitat.	**MD SSS 2C:** No change (same as 2019).

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
D. In management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will apply the lek buffer-distances identified in the USGS report, Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review Open File-Report 2014-1239 (Manier et al. 2014), in accordance with Appendix B.	D. In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will utilize the lower end of the interpreted range of lek buffer-distances and guidance identified in Mainer et al. (2014) to establish the evaluation area around leks that will be used to analyze impacts during project-specific NEPA, including scientifically justifiable departures based on local data, topography, and other factors, in accordance with **Appendix B**.	**MD SSS 2D:** No change (same as 2019).
E. Seasonal restrictions will be applied during the periods specified below to manage discretionary surface-disturbing activities and uses on public lands (i.e., anthropogenic disturbances) that are disruptive to GRSG, to prevent disturbances to GRSG during seasonal life-cycle periods: 1. In breeding habitat within 4 miles of active and pending GRSG leks from March 1 through June 30: a. Lek—March 1 to May 15 b. Lek hourly restrictions—6 p.m. to 9 a.m. c. Nesting—April 1 to June 30 2. Brood-rearing habitat from May 15 to September 15 a. Early—May 15 to June 15 b. Late—June 15 to September 15 3. Winter habitat from November 1 to February 28 The seasonal dates may be modified due to documented local variations (e.g., higher/lower elevations) or annual climatic fluctuations (e.g., early/late spring, long/heavy winter), in	E. Seasonal restrictions will be applied during the period specified below to manage discretionary surface-disturbing activities and uses on public lands (i.e., anthropogenic disturbances) that are disruptive to GRSG, to prevent disturbances to GRSG during seasonal life-cycle periods: 1. In breeding habitat within 4 miles of active and pending GRSG leks from March 1 through June 30 a. Lek—March 1 to May 15 b. Lek hourly restrictions—6 p.m. to 9 a.m. c. Nesting—April 1 to June 30 2. Brood-rearing habitat from May 15 to September 15 a. Early—May 15 to June 15 b. Late—June 15 to September 15 3. Winter habitat from November 1 to February 28. The seasonal dates could be modified or waived (in coordination with NDOW and/or CDFW) based on site-specific information that indicates: i. A project proposal's NEPA document and/or project record, and correspondence from NDOW and/or	**MD SSS 2E:** No change (same as 2019).

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coordination with NDOW and California Department of Fish and Wildlife (CDFW), in order to better protect GRSG and its habitat.	CDFW demonstrates that any modification (shortening/extending seasonal timeframes or waiving the seasonal timing restrictions altogether) is justified on the basis that it serves to better protect or enhance GRSG and its habitat than if the seasonal timing restrictions are implemented. Under this scenario modifications can occur if: a. A proposed activity will have beneficial or neutral impacts on GRSG. b. Topography or other factors eliminate direct and indirect impacts from visibility and audibility to GRSG and its habitat c. There are documented local variations (e.g., higher/lower elevations) and/or annual climatic fluctuations (e.g., early/late spring, long/heavy winter) that indicate the seasonal Life cycle periods are different than presented, or that GRSG are not using the area during a given seasonal life cycle period. ii. Modifications are needed to address an immediate public health and safety concern in a timely manner (e.g., maintaining a road impacted by flooding). iii. The proposed action is determined to be a routine administrative function conducted by federal, state or local governments, including prior existing uses, authorized uses, valid existing rights and existing infrastructure (i.e., rights-of-way for roads) that serve a public purpose and will have no adverse impacts on GRSG or its habitat.	*(see above)*

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F. Authorizations and permits will limit noise from discretionary activities (during construction, operation, and maintenance) to not exceed 10 decibels above ambient sound levels at least 0.25 mile from active and pending leks, from 2 hours before to 2 hours after sunrise and sunset during the breeding season. See Appendix M, Greater Sage-Grouse Noise Protocol.	F. Authorizations and permits will limit noise from discretionary activities (during construction, operation, and maintenance) to not exceed 10 decibels above ambient sound levels at least 0.25 mile from active and pending leks, from 2 hours before to 2 hours after sunrise and sunset during the breeding season. See **Appendix G**, Greater Sage-Grouse Noise Protocol.	**MD SSS 2F:** No change (same as 2019).
MD SSS 3: In GHMAs, the following conditions will be met in order to avoid, minimize, and mitigate any effects on GRSG or its habitat from the project/activity: A. In GHMAs, in undertaking BLM management actions, and consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the species, including accounting for any uncertainty associated with the effectiveness of such mitigation. The project/activity with associated mitigation (such as the use of the State of Nevada Conservation Credit System) in GHMAs will result in an overall net conservation gain to GRSG (see Appendix F, Regional Mitigation Strategy).	**MD SSS 3**: In GHMAs, the following conditions will be met: A. See MD MIT 1.	**MD SSS 3A:** No change (same as 2019).

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B. Authorized/permitted activities are implemented adhering to the RDFs described in Appendix C, consistent with applicable law. At the site-specific scale, if an RDF is not implemented, at least one of the following must be demonstrated in the NEPA analysis associated with the project/activity: 1. A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to the site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable. 2. An alternative RDF is determined to provide equal or better protection for GRSG or its habitat. 3. A specific RDF will provide no additional protection to GRSG or its habitat.	B. Authorized/permitted activities are implemented adhering to the RDFs described in Appendix C, consistent with applicable law. At the site-specific scale, if an RDF is not implemented, at least one of the following must be demonstrated in the NEPA analysis associated with the project/activity: 1. A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to the site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable. 2. An alternative RDF is determined to provide equal or better protection for GRSG or its habitat. 3. A specific RDF will provide no additional protection to GRSG or its habitat.	**MD SSS 3B:** No change (same as 2019).
C. In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will apply the lek buffer-distances identified in the USGS report, Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review Open File Report 2014-1239 (Manier et.al 2014]), in accordance with Appendix B.	C. In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will utilize the lower end of the interpreted range of lek buffer-distances and guidance identified in Mainer et al. (2014) to establish the evaluation area around leks that will be used to analyze impacts during project-specific NEPA, including scientifically justifiable departures based on local data, topography, and other factors, in accordance with Appendix B.	**MD SSS 3C:** No change (same as 2019).

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D. Seasonal restrictions will be applied during the periods specified below to manage discretionary surface-disturbing activities and uses on public lands (i.e., anthropogenic disturbances) that are disruptive to GRSG, to prevent disturbances to GRSG during seasonal life-cycle periods: 1. In breeding habitat within 4 miles of active and pending GRSG leks from March 1 through June 30 a. Lek—March 1 to May 15 b. Lek hourly restrictions—6 p.m. to 9 a.m. c. Nesting—April 1 to June 30 2. Brood-rearing habitat from May 15 to September 15 a. Early—May 15 to June 15 b. Late—June 15 to September 15 3. Winter habitat from November 1 to February 28 The seasonal dates may be modified due to documented local variations (e.g., higher/lower elevations) or annual climatic fluctuations (e.g., early/late spring, long/heavy winter), in coordination with NDOW and CDFW, in order to better protect GRSG and its habitat.	D. Seasonal restrictions will be applied during the period specified below to manage discretionary surface-disturbing activities and uses on public lands (i.e., anthropogenic disturbances) that are disruptive to GRSG, to prevent disturbing GRSG during seasonal life cycle periods, as follows: 1. In breeding habitat within 4 miles of active and pending GRSG leks from March 1 through June 30 a. Lek—March 1 to May 15 b. Lek hourly restrictions—6 p.m. to 9 a.m. c. Nesting—April 1 to June 30 2. Brood-rearing habitat from May 15 to September 15 a. Early—May 15 to June 15 b. Late—June 15 to September 15 3. Winter habitat from November 1 to February 28. The seasonal dates could be modified or waived (in coordination with NDOW and/or CDFW) based on site-specific information that indicates: i. A project proposal's NEPA document and/or project record, and correspondence from NDOW and/or CDFW, demonstrates that any modification (shortening/extending seasonal timeframes or waiving the seasonal timing restrictions altogether) is justified on the basis that it serves to better protect or enhance GRSG and its habitat than if the seasonal timing restrictions are implemented. Under this scenario modifications can occur if:	**MD SSS 3D:** No change (same as 2019).

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(see above)	a. A proposed activity will have beneficial or neutral impacts on GRSG. b. Topography or other factors eliminate direct and indirect impacts from visibility and audibility to GRSG and its habitat. c. There are documented local variations (e.g., higher/lower elevations) and/or annual climatic fluctuations (e.g., early/late spring, long/heavy winter) that indicate the seasonal life cycle periods are different than presented, or that GRSG are not using the area during a given seasonal life cycle period. ii. Modifications are needed to address an immediate public health and safety concern in a timely manner (e.g., maintaining a road impacted by flooding). iii. The proposed action is determined to be a routine administrative function conducted by federal, state or local governments, including prior existing uses, authorized uses, valid existing rights and existing infrastructure (i.e., rights-of-way for roads) that serve a public purpose and will have no adverse impacts on GRSG or its habitat.	*(see above)*
E. Authorizations and permits will limit noise from discretionary activities (during construction, operation, and maintenance) to not exceed 10 decibels above ambient sound levels at least 0.25 mile from active and pending leks from 2 hours before to 2 hours after sunrise and sunset during the breeding season. See Appendix M, Greater Sage-Grouse Noise Protocol.	E. Authorizations and permits will limit noise from discretionary activities (during construction, operation, and maintenance) to not exceed 10 decibels above ambient sound levels at least 0.25 mile from active and pending leks from 2 hours before to 2 hours after sunrise and sunset during the breeding season. See Appendix G, Greater Sage-Grouse Noise Protocol.	**MD SSS 3E:** No change (same as 2019).

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MD SSS 4: In OHMAs, authorized/permitted activities are implemented adhering to the RDFs described in Appendix C, consistent with applicable law. At the site-specific scale, if an RDF is not implemented, at least one of the following must be demonstrated in the NEPA analysis associated with the project/activity: • A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to the site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable. • An alternative RDF is determined to provide equal or better protection for GRSG or its habitat. • A specific RDF will provide no additional protection to GRSG or its habitat.	No changes made.	No change (same as 2015).

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MD SSS 5: Designate SFA, as shown on Figure 1-3 (2,797,400 acres). SFA will be managed as PHMAs, with the following additional management: • Recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights • Managed as NSO, without waiver, exception, or modification, for fluid mineral leasing • Prioritized for vegetation management and conservation actions in these areas, including, but not limited to land health assessments, wild horse and burro management actions, review of livestock grazing permits/leases, and habitat restoration (see specific management sections).	**MD SSS 5 (Allocation Exception Criteria):** In PHMA, GHMA, and OHMA, the State Director may grant an exception to the allocations and stipulations described in **Table 2-1**: Comparative Summary of Alternatives if one of the following applies (in coordination with NDOW, SETT, and/or CDFW): i. The location of the proposed activity is determined to be unsuitable (by a biologist with GRSG experience using methods such as Stiver et. al. 2015) and lacks the ecological potential to become marginal or suitable habitat; and will not result in direct, indirect, or cumulative impacts on GRSG and its habitat. Management allocation decisions will not apply to those areas determined to be unsuitable if the area has passed a threshold and lacks the ecological potential to become marginal or suitable habitat. ii. The proposed activities impacts will be offset to result in no adverse impacts on GRSG or its habitat, through use of the mitigation hierarchy and the State's mitigation policies and programs, such as the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). In cases where exceptions may be granted for projects with a residual impact, voluntary compensatory mitigation consistent with the State's mitigation policies and programs, such as the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law) will be one mechanism by which a proponent achieves the Approved RMPA goals, objectives, and exception criteria. When a proponent volunteers compensatory mitigation as their chosen approach to address residual impacts, the BLM will incorporate those actions	Completely Revised.

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(see above)	into the rationale used to grant an exception. The final decision to grant a waiver, exception, or modification will be based, in part, on criteria consistent with the State's GRSG management plans and policies. iii. The proposed activity will be authorized to address public health and safety concerns, specifically as they relate to federal, state, local government and national priorities. iv. Renewals or re-authorizations of existing infrastructure in previously disturbed sites or expansions of existing infrastructure that do not result in direct, indirect, or cumulative impacts on GRSG and its habitat. v. The proposed activity is determined to be a routine administrative function conducted by federal, state or local governments, including prior existing uses, authorized uses, valid existing rights and existing infrastructure (i.e., rights-of-way for roads) that serve a public purpose and will have no adverse impacts on GRSG and its habitat, consistent with the State's mitigation policies and programs, such as the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). vi. Exceptions to non-disposal or exchange of lands that are identified for retention in **Appendix A, Figure 2-12** could be considered if (a) they are identified for disposal through previous planning efforts or address a Congressional Act (e.g., the respective Lincoln and White Pine County Conservation, Recreation, and Development Acts), (b) the agency can demonstrate that the disposal, including land exchanges, will have no	*(see above)*

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(see above)	adverse direct, indirect or cumulative impacts on GRSG and its habitat, or (c) adverse impacts on GRSG or its habitat will be offset, through use of voluntary compensatory mitigation, consistent with the States' mitigation policies and programs, such as the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law).	*(see above)*
MD SSS 6: Cooperate with federal and state agencies, universities, and other organizations to establish and maintain a GRSG telemetry database.	No changes made.	No change (same as 2015).
MD SSS 7: Work with project proponents to limit project-related noise, seasonally or annually (see MDs SSS 2 and SSS 3), in GRSG habitat where it would be expected to reduce functionality of habitats that support associated GRSG populations. Support the establishment of ambient baseline noise levels for leks in PHMAs and GHMAs. • As additional noise-related research and information emerge, specific new limitations appropriate to the type of projects being considered will be evaluated and appropriate measures will be implemented where necessary to minimize the potential for noise impacts on GRSG populations.	No changes made.	No change (same as 2015).

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MD SSS 8: As determined by BLM in coordination with NDOW or CDFW, for any surface-disturbing activities involving mineral activities (to the extent possible under existing law) and rights-of-way actions proposed in PHMAs and GHMAs, the proponent will use the services of a qualified biologist approved by the BLM to conduct surveys for GRSG breeding activity during the GRSG breeding season before project activities begin. The surveys must encompass all suitable GRSG habitats within a minimum of 4 miles of the proposed activities. Surveys will be conducted following protocols established by state fish and wildlife agencies during planning operations and during project activities. GRSG seasonal habitat delineations will also be required within a minimum of 4 miles of project activities.	No changes made.	No change (same as 2015).
MD SSS 9a: In Nevada only, the BLM will consult with the Sagebrush Ecosystem Technical Team (SETT) for application of the "avoid, minimize, and compensate" mitigation strategy and the Conservation Credit System developed by the Nevada Natural Heritage Program and the SETT (2014a, 2014b) or other applicable mitigation system such as outlined in Appendix I. This will be to ensure that a net conservation gain of GRSG habitat is achieved in mitigating human disturbances in PHMAs and GHMAs (see Appendix F) on all agency-authorized activities. The specifics of the coordination will be identified in an MOU between the agencies.	See **MD MIT 1**	No change (same as 2019).
MD SSS 9b: In California only, the BLM will follow the BLM mitigation strategy outlined in Appendix F.	See **MD MIT 1**	No change (same as 2019).

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MD SSS 10: When necessary or as new data becomes available, site-specific NEPA analysis on use authorizations in PHMA and GHMA will include project level adaptive management responses to address changed conditions in GRSG habitat and population trends (see Appendix J, Adaptive Management Plan).	No changes made.	No change (same as 2015).
MD SSS 11: Design and construct fences consistent with BLM H-1741-1, Fencing Standards Manual (BLM 1990), and apply the Sage-Grouse Fence Collision Risk Tool to Reduce Bird Strikes (NRCS 2012). Bring existing fencing into compliance as opportunities arise.	No changes made.	No change (same as 2015).
Disease	**Disease**	—
Objective SSS 5: Coordinate with state agencies to monitor trends of diseases, such as West Nile virus, in the subregion to determine if mitigation or additional RDFs need to be applied (consistent with applicable law) to use authorizations.	No changes made.	No change (same as 2015).
Management Decisions (MD):	**Management Decisions (MD):**	—
MD SSS 12: When developing or modifying water developments on BLM-administered lands in PHMAs, GHMAs, and OHMAs and in accordance with state water law and subject to valid existing rights, use applicable RDFs consistent with applicable law to mitigate potential impacts from West Nile virus. Bring existing water developments into compliance as opportunities arise.	No changes made.	No change (same as 2015).
Predation	**Predation**	—
Objective SSS 6: Manage human uses on public lands to reduce the effects of predation on GRSG.	No changes made.	Completely Revised.
Management Decisions (MD):	**Management Decisions (MD):**	—
MD SSS 13: Require authorizations to include stipulations and RDFs consistent with applicable law to reduce or eliminate opportunities to attract and provide nesting, cover, or perches for predators in PHMAs and GHMAs.	No changes made.	Completely Revised.

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MD SSS 14: Coordinate with other federal, state, county, and tribal governments and local working groups to reduce GRSG deaths due to predation where it is determined to be additive or is a limiting factor influencing GRSG populations.		Completely Revised.
MD SSS 15: Reduce and eliminate artificial hunting perches and nesting surfaces for aerial predators (e.g., remove fences, nonworking fences, and power lines and install anti-perch devices on existing and new power lines).	No changes made.	Completely Revised.
Adaptive Management (Also see Appendix J)	—	—
Management Decisions (MD):	**Management Decisions (MD):**	—
No similar action.	**MD SSS 16:** PHMA, GHMA, and OHMA boundaries are based on composite management categories contained within USGS's *Spatially Explicit Modeling of Annual and Seasonal Habitat for Greater Sage-Grouse (Centrocercus urophasianus) in Nevada and Northeastern California—an updated decision-support tool for management* (Coates et al. 2016), (see **Appendix A: Maps**). • Manage 9,265,800 acres as PHMA • Manage 5,748,000 acres as GHMA • Manage 4,868,900 acres as OHMA BLM recognizes that landscape level mapping may not accurately reflect on-the-ground conditions. Therefore, the HMAs (**Figure 2-1**) do not constitute a land use plan decision but rather a landscape level reference of relative habitat suitability. When a proposed project is thought to be in an area that is unsuitable for GRSG within PHMA, GHMA, and/or OHMA, habitat assessments of the project site and its surrounding areas will be conducted by a biologist with GRSG experience using BLM-approved methods such as Stiver et al. 2015 and	Partially Revised – updated acreages and references to new published model results; updated non-habitat text.

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(see above)	compliant with current BLM policy, to identify suitable, marginal, or unsuitable GRSG habitats at multiple scales. This habitat assessment process will inform criteria (i) under Issue: Allocation Exception Process, Management Alignment Alternative and Proposed Plan Amendment. The BLM will track all on-the-ground assessments and share this information with USGS and the States of Nevada and California to consider when updating HMA maps in the future.	*(see above)*
MD SSS 17: As site-specific GRSG data (habitat assessments, lek counts, telemetry, etc.) is collected, the information will be included into future modeling efforts using the "*Spatially Explicit Modeling of Greater Sage-Grouse Habitat in Nevada and Northeastern California*" (Coates et al. 2014) to reflect the most up-to-date spatial representation of GRSG habitat categories. Through plan maintenance or plan amendment/revision, as appropriate, and in consultation with the Nevada Department of Wildlife and USFWS, based on the best scientific information, the updated modeling efforts may be adopted and appropriate allocation decisions and management actions will be applied to PHMA, GHMA, and OHMA. Future modeling efforts to incorporate site-specific GRSG data will utilize the same modeling methods (as described under *Methods and Results* in Coates et al. 2014) used to develop the current Nevada and Northeastern California Subregions' GRSG habitat management categories. The addition of site-specific GRSG data will allow for the refinement of the spatial representation of the GRSG habitat management categories.	**MD SSS 17:** Consistent with the State of Nevada's Greater Sage-Grouse Conservation Plan (2014, as amended) and CDFW's management recommendations, the HMA mapping process will be reviewed and refined every 3 to 5 years, or when new data are incorporated in the model. New or improved spatial data (e.g., additional GRSG telemetry data, updated or improved vegetation community data) will be incorporated during the refinement process. The review and refinement process will be scientifically based and include review and input from the Sagebrush Ecosystem Technical Team (SETT), NDOW, BLM, USFS, USFWS, and local agencies as appropriate. For refinements on California BLM managed lands, this process will also include CDFW. Other stakeholders will be encouraged to participate in the process by submitting relevant information to the listed agencies. The USGS' habitat suitability modeling processes (Coates et al. 2016) will be the basis for future refinements, which may include results of BLM habitat suitability determinations shared with the USGS for their consideration. As these HMAs boundaries are adjusted and approved by the States of Nevada and California, adjustments to the BLM's PHMA, GHMA, and/or OHMA boundaries (along with the existing allocation	Completely Revised - adopt language from 2015, but updated to reference to new published model

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(see above)	decisions and management actions tied to these areas) will be made by the BLM through plan maintenance or amendment, as appropriate.	*(see above)*
MD SSS 18: A BSU (see Appendix A; Figure 2-2) that has hit a soft trigger due to vegetation disturbance will be a priority for restoration treatments consistent with Fire and Invasives Assessment Tool (FIAT) (Appendix J).	**MD SSS 18:** The BLM will implement the Adaptive Management Strategy as described in **Appendix D**. The revised soft and hard population triggers, warnings, and new BSU and lek cluster boundaries were derived from USGS's *Hierarchical Population Monitoring of Greater Sage-Grouse (Centrocercus urophasianus) in Nevada and California— Identifying Populations for Management at the Appropriate Spatial Scale: U.S. Geological Survey Open-File Report 2017– 1089* (Coates et al. 2017). These triggers, warnings, BSU boundaries, and lek cluster boundaries can be found in **Appendix D**. Soft and hard trigger responses will be removed when the criteria for recovery have been met (see **Appendix D**, Longevity of Responses). Removal of the soft and hard trigger responses returns management direction in the affected lek cluster and/or BSU to the management directions that were in place prior to reaching a trigger.	Completely Revised.

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MD SSS 19: If a soft trigger is reached, the BLM will identify the causal factor and apply additional project-level adaptive management and/or mitigation measures contained in the authorization (and for future similar authorizations), to alleviate the specific or presumptive causes in the decline of GRSG populations or its habitats and include the following: • The adjustment in management would be based on the causal factor and would affect only the area being impacted in the lek cluster or other appropriate scale (e.g., BSU) • GRSG populations and habitat would continue to be monitored annually • If the causal factor were not readily discernable, then an interdisciplinary team, including the BLM, Forest Service (as applicable), and state wildlife agency representatives, would identify the appropriate mitigation or adjusted management actions in a timely manner	No similar action. (MD SSS 19 was removed)	No change (same as 2019). MD SSS 19 Remains Removed
MD SSS 20: Once a hard trigger has been reached, all responses in Table J-1 and Table J-2 in Appendix J will be implemented. This includes where soft triggers have been reached for both population and habitat.	No similar action. (MD SSS 20 was removed)	No change (same as 2019). MD SSS 20 Remains Removed
MD SSS 21: When a hard trigger is hit in a PAC that has multiple BSUs, including those that cross state lines, the WAFWA Management Zone GRSG Conservation Team will convene to determine the cause, will put project level responses in place, as appropriate, and will discuss further appropriate actions to be applied. The team will also investigate the status of the hard triggers in other BSUs in the PAC and will invoke the appropriate plan response. Adopting any further actions at the plan level may require initiating a plan amendment process.	No similar action. (MD SSS 21 was removed)	No change (same as 2019). MD SSS 21 Remains Removed

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MD SSS 22: As determined by BLM in coordination with NDOW, for any surface-disturbing activities involving mineral activities and rights-of-way actions (with the possible exception of short duration activities outside of seasonal GRSG habitats) BLM will require that active and pending leks be monitored annually within 4 miles of disturbance until the use terminates and all disturbances have been restored. The proponent will fund the services of an independent qualified biologist approved by the BLM, in coordination with NDOW or CDFW, consistent with applicable law.	**MD SSS 22:** As determined by the BLM in coordination with the state wildlife agencies, for any surface-disturbing activities involving mineral activities and rights-of-way actions (with the possible exception of short duration activities outside of seasonal GRSG habitats) BLM will require that active and pending leks be monitored annually within 4 miles of disturbance until the use terminates and all disturbances have been restored. The proponent will fund the services of an independent qualified biologist approved by the BLM, in coordination with NDOW or CDFW, consistent with applicable law.	No change (same as 2019).
MD SSS 23: In making amendments to this plan, the BLM will coordinate with the FWS as BLM continues to meet its objective of conserving, enhancing and restoring GRSG habitat by reducing, minimizing or eliminating threats to GRSG and its habitat.	No changes made.	No change (same as 2019).
MD SSS 24: The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.	No similar action. (MD SSS 24 was removed)	No change (same as 2019). MD SSS 24 Remains Removed
VEGETATION (VEG) ***SAGEBRUSH-STEPPE***	***VEGETATION (VEG)***	—
Objectives:	**Objectives:**	—
Objective VEG 1: In all SFA and PHMAs, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70%) with a minimum of 15% sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Tech Ref 1734-6).	**Objective VEG 1**: In PHMAs, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70%) with a minimum of 15% sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Tech Ref 1734-6).	No change (same as 2019).

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Objective VEG 2: On public lands, establish, maintain, and enhance a resistant and resilient sagebrush vegetative community and restore sagebrush vegetation communities to reduce GRSG habitat fragmentation and maintain or reestablish GRSG habitat connectivity over the long term (Chambers et al. 2014).	No changes made.	No change (same as 2015).
Objective VEG 3: Manage PHMAs and GHMAs for vegetation composition and structure, consistent with ecological site potential and to achieve GRSG habitat objectives (**Table 2-2**).	No changes made.	Partially Revised, remove reference to Table 2-2.
Management Decisions (MD):	**Management Decisions (MD):**	—
MD VEG 1: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD VEG 2: Incorporate GRSG habitat objectives (**Table 2-2**) in the design of habitat restoration projects and manage treated areas to meet GRSG habitat objectives.	No changes made.	Partially Revised (remove reference to Table 2-2).

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MD VEG 3: Use BLM GRSG habitat maps, habitat objectives (see Table 2-2 for GRSG habitat objectives), ecological site potential, state and transition models, and concepts of resistance and resilience (Appendix H) to prioritize habitat restoration projects, including those following wildfire, to address the most limiting GRSG habitat vegetation components and to connect seasonal ranges. Habitat restoration includes the following: i. Restoring sagebrush canopy in PHMAs and GHMAs to meet GRSG habitat objectives (Table 2-2) ii. Reestablishing perennial grasses and native forbs in PHMAs and GHMAs iii. Reducing or removing pinyon or juniper in PHMAs and GHMAs to enhance seasonal range connectivity and to maintain sagebrush canopy and understory integrity iv. Restore areas affected by wildfire and the continuing invasive annual fire cycle to meet GRSG habitat objectives (Table 2-2) iv. Prioritize restoration in areas that have not crossed an ecological threshold	No changes made.	Partially Revised (remove reference to Table 2-2).
MD VEG 4: Plan vegetation treatments (including GRSG habitat treatments) in a landscape-scale context to address habitat fragmentation, effective patch size, invasive species presence, and intact sagebrush community protection, consistent with the GRSG habitat objectives identified in **Table 2-2**.	No changes made.	Partially Revised (remove reference to Table 2-2).

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MD VEG 5: For Wyoming, mountain, and basin big sagebrush communities in PHMAs and GHMAs: i. Prioritize treatments that focus on enhancing, reestablishing, or maintaining the most limiting GRSG habitat component ii. Reestablish sagebrush to meet GRSG habitat objectives (Table 2-2) iii. Manage sagebrush communities to achieve age-class, structure, cover, and species composition objectives in GRSG habitat (Table 2-2) iv. Restore herbaceous understory in brush-dominated areas to meet GRSG habitat objectives (Table 2-2) iv. Treat areas that contain cheatgrass and other invasive or noxious species to minimize competition and favor establishment of desired species (Table 2-2) v. Treat disturbed areas in accordance with FIAT (see Appendix H), including implementation-level assessments	No changes made.	Partially Revised (remove reference to Table 2-2).
MD VEG 6: Manage for establishment of sagebrush in unmaintained nonnative seedings (e.g., crested wheatgrass seedings) in or next to GRSG habitat to meet habitat objectives (**Table 2-2**).	No changes made.	Partially Revised (remove reference to Table 2-2).

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MD VEG 7: In PHMAs and GHMAs, give preference to native seeds for restoration, based on availability, adaptation (ecological site potential), and probability of success. Where the probability of success or adapted seed availability is low, nonnative seeds may be used, as long as they support GRSG habitat objectives. Choose native plant species outlined in Ecological Site Descriptions (ESDs), where available, to revegetate sites. Emphasize use of local seed collected from intact stands or greenhouse cultivation. If the commercial supply of appropriate native seeds and plants is limited, work with the BLM Native Plant Materials Development Program, Natural Resource Conservation Service (NRCS) Plant Material Program, or State Plant Material Programs. If currently available supplies are limited, use the materials that provide the greatest benefit for GRSG. In all cases, seed must be certified as weed free.	No changes made.	No change (same as 2015).
MD VEG 8: To increase seeding success and to ensure effective soil and seed contact, consider the use of specialized seed drills or other proven and effective methods that may become available based on new science.	No changes made.	No change (same as 2015).
MD VEG 9a: For Nevada BLM-managed lands, before implementation, establish project monitoring sites where vegetation treatment is planned. Treatment areas will be monitored both pre- and post- treatment on a multiple-year basis to ensure that project objectives are achieved.	No changes made.	No change (same as 2015).

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MD VEG 9b: For California BLM-managed lands, before implementation, establish project monitoring sites where vegetation treatment is planned. Treatment areas will be monitored both pre- and post- treatment on a multiple-year basis to ensure that project objectives are achieved. Juniper treatments will be monitored in accordance with the Sage Steppe Ecosystem Restoration FEIS (BLM 2008).	No changes made.	No change (same as 2015).
MD VEG 10: On public lands, where the attributes, quality, or lack of GRSG winter habitat has been identified as a limiting factor, emphasize vegetation treatments in known winter habitat to enhance quality or reduce wildfire risk around or in winter habitat.	No changes made.	No change (same as 2015).
MD VEG 11: In perennial grass, invasive annual grass, and conifer-invaded cover types, restore sagebrush steppe with local sagebrush seedings or planted seedlings where feasible.	No changes made.	No change (same as 2015).
MD VEG 12: Continue to coordinate with NDOW, CDFW, and NRCS for all development or habitat restoration proposals in PHMAs and GHMAs. Also, coordinate with the Nevada SETT, tribes, and local working groups on projects proposed in sagebrush ecosystems.	No changes made.	No change (same as 2015).
VEGETATION (VEG)	***VEGETATION (VEG)***	—
Conifer Encroachment	***Conifer Encroachment***	—
Objectives:	**Objectives:**	—
Objective VEG 4: In accordance with the vegetation dynamic development tool (VDDT; Appendix L), improve GRSG habitat by removing invading conifers in the number of acres shown in **Table 2-2** by decade for the next 50 years.	No changes made.	Partially Revised- minor update reference from Table 2-2 to Habitat Objectives

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Management Decisions (MD):	**Management Decisions (MD):**	—
MD VEG 13: Remove conifers encroaching into sagebrush habitats, in a manner that considers tribal cultural values. Prioritize treatments closest to occupied GRSG habitats and near occupied leks and where juniper encroachment is phase 1 and phase 2. Use of site-specific analysis and tools like VDDT and FIAT (see Appendix L for VDDT and Appendix H for FIAT) will help refine the location for specific areas to be treated.	No changes made.	Partially Revised- update lek terminology.
MD VEG 14: Do not construct or create new roads (temporary or permanent), skid trails, or landings in phase I pinyon or juniper removal areas during project implementation for vegetation treatments. Administrative access, including off-road travel with heavy equipment and vehicles, will be allowed during implementation.	No changes made.	No change (same as 2015).
MD VEG 15: Only treat habitats in late phase II or phase III pinyon or juniper condition to create movement corridors, connect habitats, or reduce the potential for catastrophic fire (see **Table 2-3**).	No changes made.	No change (same as 2015).
Vegetation (VEG)	***Vegetation (VEG)***	—
Invasive Species	***Invasive Species***	—
Objectives:	**Objectives:**	—
Objective VEG 5: Reduce the amount of GRSG habitat loss due to wide-spread wildfires and invasion by nonnative species.	No changes made.	No change (same as 2015).
Objective VEG 6: Control invasive species infestations in GRSG habitat already compromised by invasion.	No changes made.	No change (same as 2015).
Objective VEG 7: In accordance with the VDDT (Appendix L), improve GRSG habitat by treating annual grasses in the number of acres shown in **Table 2-4** by decade using the FIAT (Appendix H).	No changes made.	No change (same as 2015).

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Management Decisions (MD):	**Management Decisions (MD):**	—
MD VEG 16: Prevent the establishment of invasive species into uninvaded areas in PHMAs and GHMAs through properly managed grazing and by conducting systematic and strategic detection surveys, collecting data, mapping these areas, and engaging in early response to contain and eradicate invasion if it occurs.	No changes made.	No change (same as 2015).
MD VEG 17: Control the spread and introduction of noxious weeds listed by the Nevada Department of Agriculture and California Department of Food and Agriculture (NAC 555.010, Classes A through C, inclusive and 3 CCR 4500, Noxious Weed Species Pest Rating A, B, C, and Q) and undesirable nonnative plant species (Gelbard and Belnap 2003; Bergquist et al. 2007). Work with federal, state, local, and tribal groups, such as Weed Control Districts, Cooperative Weed Management Areas, and Conservation Districts, in detecting and treating nonnative species.	No changes made.	No change (same as 2015).
MD VEG 18: Where scientific support is lacking, carefully construct treatments to rigorously assess the value or detriment of untested methods to determine their value for future application to GRSG habitats.	No changes made.	No change (same as 2015).
MD VEG 19: The BLM will cooperate with other federal, state, tribal and local agencies along with academia in researching the development of biological control agents and deploying emerging technologies as they become available.	No changes made.	No change (same as 2015).
MD VEG 20: Monitor and adjust treatment sites and methods as needed to ensure effectiveness of efforts to prevent and control invasive species and restore GRSG habitat.	No changes made.	No change (same as 2015).

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
MD VEG 21: Assess invasive annual grass presence and distribution before implementing vegetation restoration projects to determine if treatments are required to treat invasive annual grasses.	No changes made.	No change (same as 2015).
MD VEG 22: Treat sites in PHMAs and GHMAs that contain invasive species infestations through an integrated pest management (IPM) approach, using fire, chemical, mechanical, and biological (e.g., targeted grazing) methods, based on site potential and in accordance with FIAT (Appendix H). Treat areas that contain cheatgrass and other invasive or noxious species to minimize competition and favor establishment of desired species.	No changes made.	No change (same as 2015).
No similar action	No similar action	New: refer to MD VEG (new MD)
Vegetation (VEG) ***Riparian and Wetlands Habitat***	***Vegetation (VEG)*** ***Riparian and Wetlands Habitat***	—
Objectives:	**Objectives:**	—
Objective VEG 8: Manage riparian areas in PHMAs and GHMAs for vegetation composition and structure, consistent with ecological site potential and to achieve GRSG habitat objectives (**Table 2-2**).	No changes made.	Partially Revised (remove reference to Table 2-2).
Objective VEG 9: Manage upland habitat associated with riparian areas to promote cover relative to site potential to facilitate brood-rearing habitat (**Table 2-2**).	No changes made.	Partially Revised- update reference from Table 2-2 to Habitat Objectives
Objective VEG 10: Where riparian function has been compromised or lost, manage to restore riparian function and meet GRSG habitat objectives (**Table 2-2**).	No changes made.	Partially Revised (remove reference to Table 2-2)
Objective VEG 11: In riparian and wet meadow areas, inventory, monitor, and control invasive species in PHMAs and GHMAs.	No changes made.	No change (same as 2015).

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Management Decisions (MD):	**Management Decisions (MD):**	—
MD VEG 23: Design and implement vegetation treatments in PHMAs and GHMAs to restore, enhance, and maintain riparian areas (**Table 2-2**).	No changes made.	Partially Revised- update reference from Table 2-2 to Habitat Objectives
MD VEG 24: Consider an array of vegetation treatments to increase edge and expand mesic areas in PHMAs and GHMAs where riparian extent is limited by shrub encroachment (**Table 2-2**).	No changes made.	Partially Revised- update reference from Table 2-2 to Habitat Objectives
MD VEG 25: Manage lotic riparian habitats in conjunction with adjacent terraces and valley bottoms as natural fuel breaks to reduce the size and frequency of wildfires in PHMAs and GHMAs.	No changes made.	No change (same as 2015).
Vegetation (VEG) ***Climate Change***	***Vegetation (VEG)*** ***Climate Change***	—
Objectives:	**Objectives:**	—
Objective VEG 12: Use the landscape approach and promote landscape-scale, ecosystem-based actions to enhance resiliency and sustainability of PHMAs and GHMAs to climate stress.	No changes made.	No change (same as 2015).
Objective VEG 13: In PHMAs and GHMAs, manage risks of GRSG habitat degradation or loss from landscape stressors of drought, invasive species, and wildfire exacerbated by climate change to maintain existing GRSG populations and habitats.	No changes made.	No change (same as 2015).
Management Decisions (MD):	**Management Decisions (MD):**	—
MD VEG 26: As climate change data become available through Rapid Ecoregional Assessments or other ecological studies, identify areas of unfragmented GRSG habitat and corridors that provide the life-cycle and genetic transfer needs for GRSG and adjust resource management practices, as needed.	No changes made.	No change (same as 2015).
MD VEG 27: Cooperate with multiple agencies and stakeholders to establish and maintain a network of climate monitoring sites and stations.	No changes made.	No change (same as 2015).

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FIRE AND FUELS MANAGEMENT (FIRE) ***WILDFIRE MANAGEMENT***	***FIRE AND FUELS MANAGEMENT (FIRE)*** ***WILDFIRE MANAGEMENT***	—
OBJECTIVE	***OBJECTIVE***	—
Objective FIRE 1: The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. GRSG habitat will be prioritized commensurate with property values and other critical or sensitive habitats to be protected, with the goal to restore, enhance, and maintain areas suitable for GRSG.	No changes made.	No change (same as 2015).
Management Decisions (MD):	**Management Decisions (MD):**	—
MD FIRE 1: Support the conservation of GRSG habitat objectives (**Table 2-2**) through appropriate wildfire management planning, coordination, staffing, resource allocations, training, equipment, and management oversight.	No changes made.	Partially Revised (remove reference to Table 2-2).
MD FIRE 2: Prioritize fire operations and fuels management decisions in SFA first, followed by PHMAs outside of SFA in accordance with the implementation-level FIAT assessments, and then GHMAs for conservation and protection during fire operations and fuels management decision-making. When suppression resources are widely available, place maximum efforts on limiting fire growth in GHMAs as well.	**MD FIRE 2:** Prioritize fire operations and fuels management decisions in PHMA in accordance with the implementation-level FIAT assessments, and then GHMAs for conservation and protection during fire operations and fuels management decision-making. When suppression resources are widely available, place maximum efforts on limiting fire growth in GHMAs as well.	No change (same as 2019).
MD FIRE 3: BLM planning units, in coordination with the USFWS and relevant state agencies, will annually review the GRSG landscape wildfire and invasive species habitat assessments (FIAT). Based on this review, revised actions to ameliorate invasive species must be incorporated into the assessment.	No changes made.	No change (same as 2015).

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MD FIRE 4: Compile relevant field office- and district-level information into the statewide GRSG Annual Operating Handbook for use by resource advisors, wildfire crews, and agency administrators. The handbook will contain GRSG maps (including habitat and fuels treatment maps) and lists of state and local GRSG resource advisors and their contact information, local guidance, and other relevant information for each field office and district, aggregated into a statewide document.	No changes made.	No change (same as 2015).
MD FIRE 5: Coordinate and collaborate with federal, tribal, state, and local governments and associations sanctioned through either California or Nevada that meet fire standards for effective and efficient wildfire response.	No changes made.	No change (same as 2015).
MD FIRE 6: Strengthen and improve interagency wildfire prevention statewide through targeted wildfire prevention messages, including providing education on GRSG habitat loss, updating interagency agreements, and conducting wildfire prevention workshops and demonstration projects.	No changes made.	No change (same as 2015).
FIRE AND FUELS MANAGEMENT (FIRE) ***Pre-Suppression***	***FIRE AND FUELS MANAGEMENT (FIRE)*** ***Pre-Suppression***	—
OBJECTIVE		—
Objective FIRE 2: Use pre-suppression efforts to reduce the size and impact of wildfires in SFA, PHMAs, and GHMAs.	**Objective FIRE 2:** Use pre-suppression efforts to reduce the size and impact of wildfires in PHMAs and GHMAs.	No change (same as 2019).
Objective FIRE 3: Protect post-fire treatments in SFA first, followed by PHMAs outside of SFA, and then GHMAs from subsequent wildfires.	**Objective FIRE 3:** Protect post-fire treatments in PHMAs first, followed by GHMAs from subsequent wildfires.	Completely Revised.
Management Decisions (MD):	**Management Decisions (MD):**	—
MD FIRE 7: Identify and prioritize areas that are vulnerable to wildfires and prescribe actions important for GRSG protection, in accordance with FIAT (see Appendix H, USDI 2015) and further refined in the implementation-level FIAT assessments.	No changes made.	No change (same as 2015).

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MD FIRE 8: Create fire management plans to guide wildfire suppression in order to protect PHMAs and GHMAs.	No changes made.	No change (same as 2015).
MD FIRE 9: Before the fire season, train GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency experts in fire operations through the following: • Instruction of resource advisors during preseason trainings • Qualification as resource advisors • Coordination with resource advisors before fire season • Contribution to incident planning with information, such as habitat features or other key data useful in fire decision-making	No changes made.	No change (same as 2015).
FIRE AND FUELS MANAGEMENT (FIRE) ***Suppression***	***FIRE AND FUELS MANAGEMENT (FIRE)*** ***Suppression***	—
OBJECTIVE	***OBJECTIVE***	—
Objective FIRE 4: Use suppression to reduce the size and impact of wildfires in SFA, PHMAs, and GHMAs.	**Objective FIRE 4:** Use suppression to reduce the size and impact of wildfires in PHMAs and GHMAs.	No change (same as 2019).
Management Decisions (MD):	**Management Decisions (MD):**	—
MD FIRE 10: Provide local GRSG habitat maps to dispatch offices and extend attack incident commanders to prioritize wildfire suppression resources and design suppression tactics. Ensure GRSG habitat maps and suppression strategies are uploaded and updated in WFDSs.	No changes made.	No change (same as 2015).
MD FIRE 11: Assign a resource advisor with GRSG habitat expertise or with access to GRSG habitat expertise to all extended attack fires in or near SFA, PHMAs, and GHMAs.	**MD FIRE 11:** Assign a resource advisor with GRSG habitat expertise or with access to GRSG habitat expertise to all extended attack fires in or near PHMAs and GHMAs.	No change (same as 2019).

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MD FIRE 12: In advance of critical fire weather, station additional federal fire suppression resources to optimize a quick and efficient response in SFA, PHMAs, and GHMAs.	**MD FIRE 12:** In advance of critical fire weather, station additional federal fire suppression resources to optimize a quick and efficient response in PHMAs and GHMAs.	No change (same as 2019).
MD FIRE 13: During periods of multiple fires, ensure line officers prioritize decisions by coordinating with resource advisors.	No changes made.	No change (same as 2015).
MD FIRE 14: To the extent possible, locate wildfire suppression facilities (e.g., base camps, spike camps, drop points, staging areas, and helicopter bases) in areas to avoid disturbing PHMAs and GHMAs. These include disturbed areas, grasslands, roads and trails, or in other areas with existing disturbance or minimal sagebrush cover.	No changes made.	No change (same as 2015).
MD FIRE 15: Document fire operations (e.g., disturbance) in PHMAs and GHMAs for potential follow- up coordination and restoration.	No changes made.	No change (same as 2015).
MD FIRE 16: Use indirect attack tactics (including burn-out operations) when: Direct attack is not effective in stopping fires with the potential of becoming significantly larger due to fuel loading, weather conditions, and fire behavior. If firefighter and public safety would be threatened or compromised	No changes made.	No change (same as 2015).
MD FIRE 17: Use retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.	No changes made.	No change (same as 2015).
MD FIRE 18: Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.	No changes made.	No change (same as 2015).

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FIRE AND FUELS MANAGEMENT (FIRE) ***Fuels Management***	***FIRE AND FUELS MANAGEMENT (FIRE)*** ***Fuels Management***	—
OBJECTIVE	***OBJECTIVE***	—
Objective FIRE 5: Protect and enhance PHMAs and GHMAs and areas of connectivity that support GRSG populations, including large contiguous blocks of sagebrush, through fuels management and incorporation of the FIAT assessment (Appendix H).	No changes made.	No change (same as 2015).
MANAGEMENT DECISIONS (MD):	***MANAGEMENT DECISIONS (MD):***	—
MD FIRE 19: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD FIRE 20: In PHMAs and GHMAs, apply fuels treatments on a landscape level to modify fire behavior, intensity, complexity (fire patchiness), size, and effects in which fire management efforts are enhanced.	No changes made.	No change (same as 2015).
MD FIRE 21: Establish and maintain fuel breaks to protect GRSG and its habitat to limit fire size and mitigate fire behavior to increase suppression effectiveness. When possible, establish fuel breaks next to roads or other previously disturbed areas.	No changes made.	No change (same as 2015).
MD FIRE 22: Use a full range of fuels management strategies and tactics within acceptable risk levels across the range of GRSG habitat consistent with land use plan direction.	No changes made.	No change (same as 2015).

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MD FIRE 23: If prescribed fire is used in GRSG habitat, the NEPA analysis for the Burn Plan will address: • Why alternative techniques were not selected as a viable option • How GRSG goals and objectives will be met by its use • How the COT report objectives will be addressed and met • A risk assessment to address how potential threats to GRSG habitat will be minimized. Allow prescribed fire as a vegetation or fuels treatment, and it shall only be considered after the NEPA analysis for the burn plan has addressed the four bullets outlined above. Prescribed fire can be used to meet specific fuels objectives that will protect GRSG habitat in PHMAs (e.g., creation of fuel breaks that would disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities). Allow prescribed fire in known winter range, and it shall only be considered after the NEPA analysis for the burn plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat will need to be designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality.	No changes made.	Completely Revised.

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MD FIRE 24: In coordination with the USFWS and relevant state agencies and in accordance with FIAT (see Appendix H), develop a fuels management strategy for the BLM with large blocks of GRSG habitat. The strategy shall include an up-to-date fuels profile, land use plan direction, current and potential habitat fragmentation, sagebrush and GRSG ecological factors, and active vegetation management steps to provide critical breaks in fuel continuity. When developing this strategy, consider the risk of increased habitat fragmentation from a proposed action versus the risk of large-scale fragmentation posed by wildfires if the action were not taken.	No changes made.	No change (same as 2015).
MD FIRE 25: Design fuels treatments through an interdisciplinary team process to expand, enhance, maintain, and protect PHMAs and GHMAs. Fuel reduction techniques, such as prescribed fire and chemical, biological (including targeted grazing), and mechanical treatments, are acceptable. Use green strips and fuel breaks, where appropriate, to protect seeding from subsequent fires.	No changes made.	Completely Revised.
MD FIRE 26: In coordination with the USFWS and relevant state agencies and in accordance with FIAT (see Appendix H), BLM will identify treatment needs for wildfire and invasive species management. Ongoing treatment needs will be coordinated on state and regional scales and across jurisdictional boundaries for long-term conservation of GRSG and its habitat.	No changes made.	No change (same as 2015).
MD FIRE 27: On project completion, monitor and manage fuels projects to ensure long-term success, including persistence of seeded species and other treatment components. Control invasive vegetation post-treatment.	No changes made.	No change (same as 2015).

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MD FIRE 28: Design fuels treatments to protect sagebrush ecosystems, modify fire behavior, restore ecological function, and create landscape patterns that most benefit PHMAs and GHMAs and promote use by GRSG.	No changes made.	No change (same as 2015).
MD FIRE 29: Train fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.	No changes made.	No change (same as 2015).
MD FIRE 30: Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize killing desirable perennial plant species and reduce risk of annual grass invasion) and incorporate FIAT assessment (Chambers et. al 2014) in PHMAs and GHMAs.	No changes made.	No change (same as 2015).
MD FIRE 31: Ensure proposed sagebrush treatments are planned with interdisciplinary input from the BLM and coordinated with USFWS and state fish and wildlife agencies to meet GRSG habitat objectives (**Table 2-2**).	No changes made.	Partially Revised (remove reference to Table 2-2).
MD FIRE 32: Design vegetation treatments in areas of high fire frequency to facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat.	No changes made.	No change (same as 2015).
MD FIRE 33a: For Nevada BLM-administered lands, before implementation, establish project monitoring sites where fuels management projects are planned. Monitor treatment areas both pre- and post-treatment on a multiple-year basis to ensure that project objectives are achieved.	No changes made.	No change (same as 2015).

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MD FIRE 33b: For California BLM-managed lands, before implementation, establish project monitoring sites where fuels management projects are planned. Monitor treatment areas both pre- and post- treatment on a multiple-year basis to ensure that project objectives are achieved. Juniper treatments will be monitored in accordance with the Sage Steppe Ecosystem Restoration FEIS (BLM 2008).	No changes made.	No change (same as 2015).
FIRE AND FUELS MANAGEMENT (FIRE) ***Post Fire Management***	***FIRE AND FUELS MANAGEMENT (FIRE)*** ***Post Fire Management***	—
OBJECTIVE	***OBJECTIVE***	—
Objective FIRE 6: Retain, protect, and improve intact unburned sagebrush communities in burned areas by incorporating the FIAT assessment (Chambers et. al 2014).	No changes made.	No change (same as 2015).
Management Decisions (MD):	***Management Decisions (MD):***	—
MD FIRE 34: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD FIRE 35: Prioritize post-fire treatments in PHMAs and GHMAs to maximize benefits to GRSG and its habitat. Focus post-fire treatments on replacing or reestablishing burned sagebrush habitat with the appropriate cover and structure to support GRSG habitat objectives (**Table 2-2**).	No changes made.	Partially Revised (remove reference to Table 2-2).

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MD FIRE 36: In post-fire rehabilitation plans in PHMAs and GHMAs, design revegetation projects to accomplish the following: • Maintain and enhance unburned intact sagebrush communities when at risk from adjacent threats • Stabilize soils • Reestablish hydrologic function • Maintain and enhance biological integrity • Promote plant resiliency • Limit expansion or dominance or invasive species • Reestablish native species	No changes made.	No change (same as 2015).
MD FIRE 37: Implement post-fire treatments in PHMAs and GHMAs that emphasize stabilizing, rehabilitating, and restoring sagebrush ecosystems damaged by wildfires, including controlling invasive species.	No changes made.	No change (same as 2015).
MD FIRE 38: Increase post-fire treatment activities in PHMAs and GHMAs through the use of integrated funding opportunities with other resource programs and partners.	No changes made.	No change (same as 2015).
MD FIRE 39: Following post-fire treatments, monitor and implement management actions in PHMAs and GHMAs that promote healthy perennial grass, shrub and forb communities, and lentic (slow-moving freshwater) and lotic (rapid freshwater) riparian habitats so as to further restoration and ensure long- term persistence of seeded or pre-burn native plants, in accordance with GRSG habitat objectives (**Table 2-2**).	No changes made.	Partially Revised (remove reference to Table 2-2).
MD FIRE 40: Evaluate the potential for sagebrush island plantings based on ESDs in large burn areas that may lack sufficient sagebrush seed sources in order to ensure the reestablishment of sagebrush in GRSG habitat.	No changes made.	No change (same as 2015).
MD FIRE 41: Monitor post-fire rehabilitation treatments on a multiple-year basis to ensure that project objectives are achieved.	No changes made.	No change (same as 2015).

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MD FIRE 42: Use GRSG habitat objectives (**Table 2-2**) and emphasize the use of native plant species in post-fire rehabilitation (e.g., reseeding), recognizing that nonnative species may be necessary, depending on the availability of native seed and prevailing site conditions. Selected species shall maintain site ecological function based on pre-burn conditions and anticipated threat of invasive and noxious weed establishment. Use ESDs and state and transition models if available.	No changes made.	Partially Revised (remove reference to Table 2-2).
No similar action.	No similar action.	New: refer to MD FIRE (new MD).
LIVESTOCK GRAZING (LG)	***LIVESTOCK GRAZING (LG)***	***LIVESTOCK GRAZING (LG)***
OBJECTIVE	***OBJECTIVE***	—
Objective LG 1: Manage permitted livestock grazing to maintain and/or enhance PHMAs and GHMAs to meet or make progress towards meeting all GRSG life-cycle requirements and habitat objectives (**Table 2-2**), based on site potential.	No changes made.	Completely Revised.

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Management Decisions (MD):	***Management Decisions (MD):***	—
MD LG 1: When livestock management practices are determined to not be compatible with meeting or making progress towards achievable habitat objectives following appropriate consultation, cooperation and coordination, implement changes in grazing management through grazing authorization modifications, or allotment management plan implementation. Potential modifications include, but are not limited to, changes in: • Season or timing of use; • Numbers of livestock; • Distribution of livestock use; • Duration and/or level of use; • Kind of livestock (e.g., cattle, sheep, horses, or goats) (Briske et al. 2011); • Grazing schedules (including rest or deferment); • Class of livestock; • Grazing schedules (including rest or deferment) • Making allotment unavailable to grazing • *Not in priority order	**MD LG 1:** When livestock management practices are determined to not be compatible with meeting or making progress towards achievable habitat objectives following appropriate consultation, cooperation and coordination, implement changes in grazing management through grazing authorization modifications, or allotment management plan implementation and consistent with 43 CFR 4160.1 and IM-2018-023. Potential modifications include, but are not limited to, changes in: • Season or timing of use; • Numbers of livestock; • Distribution of livestock use; • Duration and/or level of use; • Kind of livestock (e.g., cattle, sheep, horses, or goats) (Briske et al. 2011); • Grazing schedules (including rest or deferment); • Class of livestock; • Grazing schedules (including rest or deferment) • Making allotment unavailable to grazing • *Not in priority order	Completely Revised.
MD LG 2: The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in SFA followed by PHMAs outside of the SFA. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting land health standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.	**MD LG 2:** The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMAs. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting land health standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.	Completely Revised.

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MD LG 3: The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within SFA and PHMAs will include specific management thresholds based on GRSG Habitat Objectives Table (**Table 2-2**), Land Health Standards (43 CFR, Part 4180.2) and ecological site potential, and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.	**MD LG 3:** The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMAs will include specific management thresholds based on GRSG Habitat Objectives Table (**Table 2-2**), Land Health Standards (43 CFR, Part 4180.2) and ecological site potential, and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.	Completely Revised.
MD LG 4: Complete land health assessments in PHMAs and GHMAs to identify whether or not GRSG habitat objectives (**Table 2-2**) are being met. The priority order for completing land health assessments in GRSG habitat is: • Allotments containing SFA that have never been evaluated; • Allotments containing SFA that have not been re-evaluated in 10 or more years; • Allotments containing PHMAs that have never been evaluated; • Allotments containing PHMAs that have not been re-evaluated in 10 or more years; • Allotments containing GHMAs that have never been evaluated; • Allotments containing GHMAs that have not been re-evaluated in 10 or more years.	**MD LG 4:** Complete land health assessments in PHMAs and GHMAs to identify whether or not GRSG habitat objectives (**Table 2-2**) are being met. The priority order for completing land health assessments in GRSG habitat is: • Allotments containing PHMAs that have never been evaluated; • Allotments containing PHMAs that have not been re-evaluated in 10 or more years; • Allotments containing GHMAs that have never been evaluated; • Allotments containing GHMAs that have not been re-evaluated in 10 or more years.	Completely Revised.

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MD LG 5: If results from a land health assessment indicate that GRSG habitat objectives (**Table 2-2**) are not met in SFA, PHMAs, or GHMAs and grazing is a causal factor, and until appropriate modifications (MD LG 1) are incorporated through the permit renewal process, implement management strategies that may include, but are not limited to, the following: • Provide periods of rest or deferment during critical growth periods of key vegetation species • Limit grazing duration and intensity to allow plant growth sufficient to meet GRSG habitat objectives (**Table 2-2**) • Employ herd management techniques to minimize impacts of livestock on breeding, nesting, and brood-rearing habitat during the breeding season (March 1 to June 30; Lek—March 1 to May 15, and Nesting—April 1 to June 30) • Consider any temporary projects that can mitigate livestock impacts (e.g., temporary fencing or temporary water hauling locations; • Work with permittees to avoid concentrated turn-out locations for livestock within 4 miles of active and pending leks from March 1 to June 30 • Avoid domestic sheep use and bedding areas and herder camps within 2 miles of active and pending leks from March 1 to June 30 • Utilizing land features and roads on maps provided to the permittee to help delineate livestock use avoidance areas • Considering no grazing from May 15 – Sept. 15 in riparian areas and wet meadows. • Removing livestock within 3-7 days for the remainder of the grazing year once the allowable	**MD LG 5:** If results from a land health assessment indicate that GRSG habitat objectives (**Table 2-2**) are not met in PHMAs or GHMAs and grazing is a causal factor, and until appropriate modifications (MD LG 1) are incorporated through the permit renewal process, then, consistent with applicable law and regulations, implement management strategies that may include, but are not limited to, the following: • Provide periods of rest or deferment during critical growth periods of key vegetation species • Limit grazing duration and intensity to allow plant growth sufficient to meet GRSG habitat objectives (**Table 2-2**) • Employ herd management techniques to minimize impacts of livestock on breeding, nesting, and brood-rearing habitat during the breeding season (March 1 to June 30; Lek—March 1 to May 15, and Nesting—April 1 to June 30) • Consider any temporary projects that can mitigate livestock impacts (e.g., temporary fencing or temporary water hauling locations; • Work with permittees to avoid concentrated turn-out locations for livestock within 4 miles of active and pending leks from March 1 to June 30 • Avoid domestic sheep use and bedding areas and herder camps within 2 miles of active and pending leks from March 1 to June 30 • Utilizing land features and roads on maps provided to the permittee to help delineate livestock use avoidance areas • Considering no grazing from May 15 – Sept. 15 in riparian areas and wet meadows. • Removing livestock within 3-7 days for the remainder of the grazing year once the allowable	Completely Revised.

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use levels are reached (BLM 1996, Burton et. al 2011, Cagney et. al, 2010, Connelly et. al 2000, France et. al 2008, Hagen et. al 2007, Holechek 1988, Platts 1990, and Tanaka et. al 2014): ▪ In riparian areas and wet meadows the allowable percent utilization is 35% woody species, and a minimum stubble height of 4-6 inches (10-15 cm) for herbaceous riparian vegetation based on site. ▪ In mountain big sage habitat, the allowable percent utilization is 40 % herbaceous key species and/or 35 % shrub key species. ▪ In Wyoming Basin big sage habitat, the allowable percent utilization is 35% herbaceous key species and/or 35 % shrub key species. ▪ In black sage habitat, the allowable percent utilization is 35% herbaceous key species and/or 35 % shrub key species.	use levels are reached (BLM 1996, Burton et. al 2011, Cagney et. al, 2010, Connelly et. al 2000, France et. al 2008, Hagen et. al 2007, Holechek 1988, Platts 1990, and Tanaka et. al 2014): ▪ In riparian areas and wet meadows, the allowable percent utilization is 35% woody species, and a minimum stubble height of 4-6 inches (10-15 cm) for herbaceous riparian vegetation based on site. ▪ In mountain big sage habitat, the allowable percent utilization is 40 % herbaceous key species and/or 35 % shrub key species. ▪ In Wyoming Basin big sage habitat, the allowable percent utilization is 35% herbaceous key species and/or 35 % shrub key species. ▪ In black sage habitat, the allowable percent utilization is 35% herbaceous key species and/or 35 % shrub key species. To the extent that the implementation of these strategies would be in conflict with the terms and conditions of any applicable livestock grazing permit or lease, then the BLM would complete a new decision-making process before implementing the strategies.	*(see above)*
MD LG 6: Appropriate allowable utilization levels will be defined through the grazing permit renewal process. At least one alternative in the NEPA process will consider the utilization levels identified in MD LG 5.	No changes made.	Completely Revised.

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MD LG 7: In pastures where post livestock removal use monitoring results in utilization levels that exceed allowable use levels and livestock are identified as a causal factor, reduce animal unit months (AUMs) grazed the following year accordingly. AUMs cannot be applied to another pasture that is already being used by livestock or is being purposefully rested.	**MD LG 7:** In pastures where post livestock removal use monitoring results in utilization levels that exceed allowable use levels and livestock are identified as a causal factor, reduce animal unit months (AUMs) grazed the following year in accordance with 43 CFR 4160.1 and IM 2018-023. AUMs cannot be applied to another pasture that is already being used by livestock or is being purposefully rested.	Completely Revised.
MD LG 8: Within PHMAs and GHMAs, incorporate terms and conditions into grazing permits to meet GRSG habitat objectives (**Table 2-2**), specific terms and conditions will be based on rangeland health assessments (and subsequent monitoring data).	No changes made.	Completely Revised.

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
MD LG 9: When a transfer application is received for preference on an allotment within GRSG habitat: • Transfer of Preference: A transfer of preference will be approved unless the applicant does not meet qualifications (43 CFR, Part 4110.1 and 4110.2). A transfer will be approved to an unqualified applicant if 4110.2-3(e) applies. • Issuing the permit: In accordance with Section 402(c)(2) of FLPMA, a new permit will be issued to the new preference holder with the same terms and conditions as the terminated permit unless: ▪ A NEPA analysis of alternative terms and conditions has been completed. If changes in terms and conditions are needed to meet sage-grouse habitat needs or otherwise make progress toward meeting land health standards, issue a decision offering a permit with the new terms and conditions • If a new permit is issued as required by Section 402(c)(2) of FLPMA, then determine priority for completing land health evaluations, habitat assessments and NEPA analysis as described in MD LG 1.	No changes made.	Completely Revised.
MD LG 10: In any allotment where land health standards were not met and livestock grazing was found to be a significant causal factor, compliance monitoring will be conducted annually until GRSG habitat objectives (**Table 2-2**) are met. If compliance monitoring finds that the implemented management strategies identified in MD LG 5 are not achieving the desired results, a change in action will be required.	**MD LG 10:** In any allotment where land health standards were not met and livestock grazing was found to be a significant causal factor, compliance monitoring will be conducted annually until GRSG habitat objectives (**Table 2-2**) are met or making progress towards meeting habitat objectives. If compliance monitoring finds that the implemented management strategies identified in MD LG 5 are not achieving the desired results, a change in action will be required in compliance with CFR 43 CFR 4160.1 and IM 2018-023.	Completely Revised.

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MD LG 11: Allotments within SFA, followed by those within PHMAs, and focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.	**MD LG 11:** Allotments within PHMAs, focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.	Completely Revised.
MD LG 12: Grazing management strategies for riparian areas and wet meadows will, at a minimum, maintain or achieve proper functioning condition (PFC) and promote GRSG brood-rearing habitat objectives (**Table 2-2**) within PHMAs and GHMAs.	No changes made.	Completely Revised.
MD LG 13: For range improvement projects, review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	Completely Revised.
MD LG 14: Build or modify livestock exclosures so that they are large enough to provide hiding cover to GRSG and other wildlife and to reduce the possibility of wildlife collisions with fences (Christiansen 2009; Stevens 2011; NRCS 2012).	No changes made.	Completely Revised.
MD LG 15: In accordance with state water law and subject to valid existing rights, remove or modify water developments that are negatively impacting GRSG habitats.	No changes made.	Completely Revised.
MD LG 16: Authorize new water developments for diversion from spring or seep source, in accordance with state water law and subject to valid existing rights when PHMAs and GHMAs will benefit from or not be negatively impacted by the new development. This includes developing new water sources for livestock as part of a grazing management plan to improve GRSG habitat.	No changes made.	Completely Revised.

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MD LG 17: Modify water development projects to ensure riparian habitats in PHMAs and GHMAs are being maintained or improved in compliance with valid existing rights and in accordance with state water law.	No changes made.	Completely Revised.
MD LG 18: Locate salting and supplemental feeding locations, temporary or mobile watering, and new handling facilities (e.g., corrals and chutes) at least 1 mile from riparian areas, springs, and meadows. The distance can be greater based on site-specific conditions.	No changes made.	Completely Revised.
MD LG 19: In PHMAs and GHMAs, remove livestock ponds built in perennial channels that are negatively impacting riparian habitats, either directly or indirectly, unless riparian access is able to be controlled and negative impacts effectively mitigated (e.g.; water gap fence to pond), and do not permit new ones to be built in these areas subject to valid existing rights. Prior to pond removal, offsite watering options will be examined and considered.	No changes made.	Completely Revised.
MD LG 20: In PHMA and GHMA, rest areas that have received vegetative treatments from livestock grazing until resource monitoring data verifies the treatment objectives are being met and an appropriate grazing regime has been developed. Any livestock grazing temporary suspended use or other management changes per 43 CFR, Part 4110.3-2a for the purpose of a vegetation treatment will be done through the grazing decision, prior to treatment.	No changes made.	Completely Revised.

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MD LG 21: At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized shall remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments and fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR, Part 4110.2-3.	No changes made.	Removed.
MD LG 22: After grazing rest associated with vegetation treatments in PHMAs and GHMAs, monitor annually for a minimum of 5 years to ensure project objectives are being maintained.	No changes made.	Completely Revised.
MD LG 23: Fences shall not be constructed or reconstructed within 1.2 miles from the perimeter of occupied leks, unless the collision risk can be mitigated through design features or markings (e.g., mark, laydown fences, and design).	No changes made.	Completely Revised.
WILD HORSES AND BURROS (WHB)	***WILD HORSES AND BURROS (WHB)***	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD WHB 1: For WHB management activities (e.g., gathers), review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD WHB 2: Manage herd management areas (HMAs) in GRSG habitat within established AML ranges to achieve and maintain GRSG habitat objectives (**Table 2-2**).	No changes made.	Completely Revised.

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MD WHB 3: Complete rangeland health assessments for HMAs containing GRSG habitat using an interdisciplinary team of specialists (e.g., range, wildlife, and riparian). The priorities for conducting assessments are: 1. HMAs containing SFA; 2. HMAs containing PHMAs, which include riparian areas; 3. HMAs containing only GHMAs; 4. HMAs containing sagebrush habitat outside of PHMAs and GHMAs mapped habitat; 5. HMAs without GRSG habitat.	**MD WHB 3:** Complete rangeland health assessments for HMAs containing GRSG habitat using an interdisciplinary team of specialists (e.g., range, wildlife, and riparian). The priorities for conducting assessments are: 1. HMAs containing PHMAs, which include riparian areas; 2. HMAs containing only GHMAs; 3. HMAs containing sagebrush habitat outside of PHMAs and GHMAs mapped habitat; 4. HMAs without GRSG habitat.	Completely Revised.
MD WHB 4: Prioritize gathers and population growth suppression techniques in HMAs in GRSG habitat, unless removals are necessary in other areas to address higher priority environmental issues, including herd health impacts. Place higher priority on herd areas not allocated as HMAs and occupied by wild horses and burros in SFA, followed by PHMAs.	**MD WHB 4:** Prioritize gathers and population growth suppression techniques in HMAs in GRSG habitat, unless removals are necessary in other areas to address higher priority environmental issues, including herd health impacts. Place higher priority on herd areas not allocated as HMAs and occupied by wild horses and burros in PHMAs.	Completely Revised.
MD WHB 5: In SFA and PHMAs outside SFA, assess and adjust AMLs through the NEPA process within HMAs when wild horses or burros are identified as a significant causal factor in not meeting rangeland health standards, even if current AML is not being exceeded.	**MD WHB 5:** In PHMAs, assess and adjust AMLs through the NEPA process within HMAs when wild horses or burros are identified as a significant causal factor in not meeting rangeland health standards, even if current AML is not being exceeded.	Completely Revised.
MD WHB 6: In SFA and PHMAs outside of SFA, monitor the effects of WHB use in relation to GRSG habitat objectives (**Table 2-2**) on an annual basis to help determine future management actions.	**MD WHB 6:** In PHMAs, monitor the effects of WHB use in relation to GRSG habitat objectives (**Table 2-2**) on an annual basis to help determine future management actions.	Completely Revised.
MD WHB 7: Develop or amend herd management area plans (HMAPs) to incorporate GRSG habitat objectives (**Table 2-2**) and management considerations for all HMAs within GRSG habitat, with emphasis placed on SFA and PHMAs outside of SFA.	**MD WHB 7:** Develop or amend herd management area plans (HMAPs) to incorporate GRSG habitat objectives (**Table 2-2**) and management considerations for all HMAs within GRSG habitat, with emphasis placed on PHMAs.	Partially Revised (remove reference to Table 2-2).

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MD WHB 8: Consider removals or exclusion of WHB during or immediately following emergency situations (such as fire, floods, and drought) to facilitate meeting GRSG habitat objectives (**Table 2-2**) where HMAs overlap with GRSG habitat.	No changes made.	Partially Revised (remove reference to Table 2-2).
MD WHB 9: When conducting NEPA analysis for wild horse/burro management activities, water developments, or other rangeland improvements for wild horses, address the direct and indirect effects to GRSG populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock.	No changes made.	No change (same as 2015).
MD WHB 10: Coordinate with professionals from other federal and state agencies, researchers at universities, and others to utilize and evaluate new management tools (e.g., population growth suppression, inventory techniques, and telemetry) for implementing the WHB program.	No changes made.	No change (same as 2015).
MINERALS RESOURCES (MR)	***MINERALS RESOURCES (MR)***	—
Leasable Minerals	***Leasable Minerals***	—
Objectives	***Objectives***	—
Objective MR 1: Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMAs and GHMAs. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMAs and GHMAs, that are subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 C.F.R. 3162.3-1(h).	**Objective MR 1 Removed**	Completely Revised.

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Objective MR 2: Where a proposed fluid mineral development project on an existing lease could adversely affect GRSG populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessee, operator, or project proponent in developing an application for permit to drill (APD) for the lease to avoid and minimize impacts on GRSG or its habitat and will ensure that the best information about GRSG and its habitat informs and helps to guide development of such federal leases.	No changes made.	Completely Revised.
Management Decisions (MD): ***Unleased Fluid Minerals***	***Management Decisions (MD):*** ***Unleased Fluid Minerals***	—
MD MR 1: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD MR 2: Manage SFA as NSO without waivers, exceptions, or modifications (see Appendix A; Figure 2-4).	**MD MR 2 Removed**	No change (same as 2019).

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MD MR 3: In PHMAs outside of SFA, no waivers or modifications to an oil and gas lease no-surface-occupancy stipulation will be granted. In PHMAs, the Authorized Officer may grant an exception to an oil and gas lease no-surface-occupancy stipulation only where the proposed action: MD MR 1: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat. i. Will not have direct, indirect, or cumulative effects on GRSG or its habitat; or, ii. Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and will provide a clear conservation gain to GRSG. Exceptions based on conservation gain (ii) may only be considered in (a) PHMAs of mixed ownership where federal minerals underlie less than fifty percent of the total surface, or (b) Areas of the public lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid federal oil and gas lease existing as of the date of this RMP amendment. Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts (see Appendix G). Any exceptions to this lease stipulation may be approved by the Authorized Officer only with the concurrence of the State Director. The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG	**MD MR 3:** In PHMAs, manage oil and gas with major constraints (no-surface occupancy) and timing limitations. See **MD SSS 5 (Allocation Exceptions)** and **Appendix E** regarding waivers, exceptions, and modifications for oil and gas lease stipulations.	No text changes (same as 2019), but MD SSS 5 and Appendix E are completely revised.

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expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publicly available at least quarterly.	*(see above)*	*(see above)*
MD MR 4a: For BLM land in the state of Nevada only, in the portions of the PHMAs outside of SFA, geothermal projects may be considered for authorization if all of the following conditions are met: • A team comprised of BLM, FWS, and NDOW specialists advises the BLM State Director on appropriate mitigation measures for the project and its ancillary facilities, including lek buffer distances using the best available science; • Mitigation actions are consistent with this Plan's mitigation strategy such as the Nevada Conservation Credit System, and; • The footprint of the project is consistent with the disturbance management protocols identified in this plan (see MD SSS 2 and Appendix E)	**MD MR 4a:** In PHMAs, manage geothermal fluid minerals with major constraints (no-surface occupancy) and timing limitations. See **MD SSS 5 (Allocation Exceptions)** and **Appendix E** regarding waivers, exceptions, and modifications for oil and gas lease stipulations.	No text changes (same as 2019), but MD SSS 5 and Appendix E are completely revised.
MD MR 4b: For BLM lands in California only, manage geothermal leasing in PHMAs in accordance with MD MR 3 (see Appendix G).	**MD MR 4b Removed**	Completely Revised.
MD MR 5: In GHMAs, manage oil and gas and geothermal fluid minerals with moderate constraints, timing limitations, and controlled surface use stipulations (see Appendix A; Figure 2-4).	No changes made.	Partially Revised- minor updates to language.

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MD MR 6: In PHMAs and GHMAs, allow only geophysical exploration that does not crush sagebrush or create new or additional surface disturbance. Examples of technologies that may meet this requirement are drilling methods using helicopters, articulated rubber-tired vehicles that leave no trace, and vibroseis geophysical operations on roads and bladed shoulders.	No changes made.	No change (same as 2015).
MD MR 7: Prohibit surface shot methods in PHMAs.	No changes made.	No change (same as 2015).
Leased Federal Fluid Mineral Estate Actions	***Leased Federal Fluid Mineral Estate Actions***	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD MR 8: Review Objective SSS 4, and to the extent allowed by law, apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD MR 9: Use directional and horizontal drilling to reduce surface disturbance.	No changes made.	No change (same as 2015).
MD MR 10: On leased federal fluid mineral estate, where no APD or geothermal drilling permit (GDP) has been issued, apply RDFs consistent with applicable law and other conditions of approval (COAs) that conserve GRSG. Manage existing fluid mineral leases through COAs applied at the time APD or GDP is approved.	No changes made.	Completely Revised.
MD MR 11: On leased federal fluid mineral estate in PHMAs, complete master development plans for oil and gas in lieu of APD-by-APD, or operations/utilization plans for geothermal processing for all but exploration wells.	No changes made.	No change (same as 2015).
MD MR 12: On leased, federal, fluid mineral estate in PHMAs, require a full reclamation bond specific to the site. Ensure bonds are sufficient for reclamation costs for full restoration. Base the reclamation costs on the assumption that BLM contractors will perform the work.	No changes made.	No change (same as 2015).

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MD MR 13: In PHMAs and GHMAs, place infrastructure in already disturbed locations to the extent feasible.	No changes made.	Completely Revised.
MD MR 14: Locate new compressor stations outside PHMAs and GHMAs and design them to reduce noise that may be directed toward PHMAs and GHMAs (see MDs SSS 2 and SSS 3 and Appendix M).	No changes made.	No change (same as 2015).
Locatable Minerals	***Locatable Minerals***	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD MR 15: Review Objective SSS 4, and to the extent allowed by law, apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD MR 16: Recommend for withdrawal SFA under the General Mining Act of 1872, as amended, subject to valid existing rights (see Appendix A; Figures 2-1 and 2-4).	**MD MR 16 Removed**	No change (same as 2019).
MD MR 17: On public lands, manage disturbances associated with notice-level activity in GRSG habitat on a landscape basis to avoid segmenting a project. Do this by encouraging operators and claimants to consolidate exploration into a plan of operations to reduce the proliferation of mining notices, in accordance with 43 CFR, Part 3809.21(b).	No changes made.	No change (same as 2015).

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MD MR 18: Subject to valid existing rights and applicable law, authorize locatable mineral development activity, by approving plans of operation and apply mitigation and best management practices that minimize the loss of PHMAs and GHMAs or that enhance GRSG habitat by applying the "avoid, minimize and compensatory mitigation" process through an applicable mitigation system, such as the Nevada Conservation Credit System and exemplified in the Barrick Nevada Sage-Grouse Bank Enabling Agreement (March 2015).	**MD MR 18:** Subject to valid existing rights and applicable law, authorize locatable mineral development activity, by approving plans of operation and apply mitigation and best management practices that minimize the loss of PHMAs and GHMAs or that enhance GRSG habitat by applying the mitigation strategy outlined in **MD MIT 1** and exemplified in the Barrick Nevada Sage-Grouse Bank Enabling Agreement (March 2015).	No text changes (same as 2019).
MD MR 19: Close or mitigate abandoned mine sites in PHMAs and GHMAs to reduce GRSG predation by eliminating physical structures that could provide nesting opportunities and perching sites for predators.	No changes made.	No change (same as 2015).
Saleable Materials	***Saleable Materials***	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD MR 20: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD MR 21: PHMAs are closed to new mineral material sales (see Appendix A; Figure 2-6). However, these areas remain open to free use permits and the expansion of existing active pits, if requirements in MD MR 20 can be met.	**MD MR 21:** PHMAs are closed to new mineral material sales **(see Appendix A; Figure 2-6)**. However, these areas remain open to free use permits and the expansion of existing active pits, if requirements in **MD MR 20** are met and/or if the new mineral material sale meets one of the allocation exception criteria outlined in **MD SSS 5**.	Completely Revised.
MD MR 22: Manage GHMAs as open to existing and new mineral materials disposal sites (see Appendix A; Figure 2-6).	No changes made.	Completely Revised.

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MD MR 23: Provide reasonable access and development opportunity to Federal Highway Administration, Nevada Department of Transportation (NDOT), California Department of Transportation (Caltrans), counties, tribes and the public for existing mineral material pits in PHMAs and GHMAs.	No changes made.	No change (same as 2015).
Non-Energy Leasable Minerals	***Non-Energy Leasable Minerals***	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD MR 24: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD MR 25: Manage PHMAs as closed to new non-energy leasable mineral leasing (see Appendix A; Figure 2-7).	**MD MR 25:** Manage PHMAs as closed to new non-energy leasable mineral leasing, unless the new non-energy leasable mineral lease meets one of the allocation exception criteria outlined in **MD SSS 5** (see **Appendix A; Figure 2-7**).	Completely Revised.
MD MR 26: Expansion of existing leases will be considered in PHMA for development.	No changes made.	Completely Revised.
MD MR 27: Manage GHMAs as open to new non-energy leasable mineral leasing (see Appendix A; Figure 2-7).	No changes made.	No change (same as 2015).
Mineral Split-Estate	***Mineral Split-Estate***	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD MR 28: Review Objective SSS 4, and to the extent allowed by law, apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat in split estate situations.	No changes made.	No change (same as 2015).

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MD MR 29: Where the federal government owns the mineral estate in PHMAs and GHMAs, and the surface is in non-federal ownership, apply the same stipulations, conditions of approval (COAs), and/or conservation measures and RDFs applied (consistent with applicable law) if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.	No changes made.	No change (same as 2015).
RENEWABLE ENERGY (WIND AND SOLAR) (RE)	***RENEWABLE ENERGY (WIND AND SOLAR) (RE)***	—
Management Decisions (MD): ***Industrial Solar***	***Management Decisions (MD):*** ***Industrial Solar***	—
MD RE 1: Designate PHMAs and GHMAs as ROW exclusion for utility-scale solar energy facilities (those that generate 20 megawatts or more) (see Appendix A; Figure 2-9).	**MD RE 1:** Manage PHMAs and GHMAs as ROW exclusion for utility-scale solar energy facilities (those that generate 20 megawatts or more), unless the utility-scale solar energy facility meets one of the allocation exception criteria outlined in **MD SSS 5**, (see **Appendix A; Figure 2-9**) and in accordance with the Final Solar Energy Development Programmatic Environmental Impact Statement (BLM 2012).	Completely Revised.
MD RE 2: In PHMAs and GHMAs, consider approving solar facilities on existing industrial infrastructure (e.g., a mine site) to generate power on-site. Review Objective SSS 4 and apply MDs SSS 1 through SSS 3 when reviewing and analyzing projects and activities proposed in GRSG habitat. In OHMAs, apply Action SSS 4.	No changes made.	No change (same as 2015).
Management Decisions (MD): ***Wind Energy Development***	***Management Decisions (MD):*** ***Wind Energy Development***	—
MD RE 3: Designate PHMAs as ROW exclusion for utility-scale commercial wind energy facilities (those that generate 20 megawatts or more) (see Appendix A; Figure 2-8).	**MD RE 3:** Manage PHMAs as ROW exclusion for utility-scale commercial wind energy facilities (those that generate 20 megawatts or more), unless the commercial wind energy facility meets one of the allocation exception criteria outlined in **MD SSS 5** (see **Appendix A; Figure 2-8**).	Completely Revised.

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MD RE 4: Within PHMAs, wind facilities associated with existing industrial infrastructure (e.g., a mine site) to provide on-site power generation could be considered for approval, subject to a net conservation gain. Apply MDs SSS 1 through SSS 2 when reviewing and analyzing projects/activities proposed within GRSG habitat.	**MD RE 4:** Within PHMAs, wind facilities associated with existing industrial infrastructure (e.g., a mine site) to provide on-site power generation could be considered for approval, subject to meeting one of the allocation exception criteria outlined in **MD SSS 5** (see **Appendix A; Figure 2-8**). Apply MDs SSS 1 through SSS 2 when reviewing and analyzing projects/activities proposed within GRSG habitat.	No change (same as 2019).
MD RE 5: Designate GHMAs as ROW avoidance for utility-scale commercial wind energy facilities (i.e., facilities that generate 20 megawatts or more) (see Appendix A; Figure 2-8). Review Objective SSS 4 and apply Actions SSS 1 through SSS 3 when reviewing and analyzing projects/activities proposed within GRSG habitat. In OHMAs apply Action SSS 4.	**MD RE 5:** Manage GHMAs as ROW avoidance for utility-scale commercial wind energy facilities (i.e., facilities that generate 20 megawatts or more), unless the commercial wind energy facility meets one of the allocation exception criteria outlined in **MD SSS 5** (see **Appendix A; Figure 2-8**). Review Objective SSS 4 and apply Actions SSS 1 through SSS 3 when reviewing and analyzing projects/activities proposed within GRSG habitat. In OHMAs apply Action SSS 4.	Completely Revised.
LANDS AND REALTY (LR)	***LANDS AND REALTY (LR)***	***LANDS AND REALTY (LR)***
Objectives:	**Objectives:**	**Objectives:**
Objective LR 1: Manage land use authorizations, including ROWs, leases, permits, and tenure adjustments, to maintain or enhance PHMAs and GHMAs and connectivity.	No changes made.	No change (same as 2015).
Objective LR 2: Effects of infrastructure projects, including siting, will be minimized using the best available science, and updated as monitoring information on current infrastructure projects becomes available.	No changes made.	No change (same as 2015).
Management Decisions (MD): ***Utility Corridors and Communication Sites***	***Management Decisions (MD):*** ***Utility Corridors and Communication Sites***	—
MD LR 1: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).

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MD LR 2: Only utility corridors identified in Appendix A, Figure 2-10 remain as designated corridors in PHMAs and GHMAs. All previously designated corridors in PHMAs and GHMAs not shown on the map that were designated through past land use planning efforts have been evaluated and undesignated.	No changes made.	Partial Change, now reads: Only utility corridors identified in Appendix A, Figure 2-10 and subsequently approved designated corridors will be managed as designated corridors in PHMAs and GHMAs. All previously designated corridors in PHMAs and GHMAs not shown on the map that were designated through past land use planning efforts have been evaluated and undesignated.
MD LR 3: On public lands, keep the designated corridors identified in Appendix A, Figure 2-10 in PHMAs and GHMAs available to new uses, subject to a maximum corridor width of 3,500 feet, unless a narrower width is specified in an existing plan, or a different width is specified for congressionally designated corridors.	No changes made.	No change (same as 2015).
MD LR 4: When issuing new communication site management plans or amending existing plans, include GRSG habitat objectives (**Table 2-2**). Current authorizations will then be amended to reflect the updated communication site management plans.	No changes made.	Partially Revised (remove reference to Table 2-2).

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Management Decisions (MD): ***Land Use Authorizations***	***Management Decisions (MD):*** ***Land Use Authorizations***	—
MD LR 5: PHMAs and GHMAs are designated as avoidance areas for high voltage transmission line ROWs (>100 kV) (see Appendix A; Figure 2-11a), except for the transmission projects specifically identified below. All authorizations in these areas, other than the identified projects, must comply with the conservation measures outlined in this proposed plan amendment, including all of the requirements presented in MDs SSS 1 – SSS 4. The BLM is currently processing an application for the TransWest Express transmission line and the NEPA review for this project is well underway. Conservation measures for GRSG are being analyzed through the project's NEPA review process, which should achieve a net conservation benefit for the GRSG.	**MD LR 5:** PHMAs and GHMAs are designated as avoidance areas for high voltage transmission line ROWs (>100 kV) (see **Appendix A; Figure 2-11**), unless the high voltage transmission line meets one of the allocation exception criteria outlined in **MD SSS 5.** Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat. In OHMAs, apply MD SSS 4.	Completely Revised.
MD LR 6: PHMAs and GHMAs are designated as major pipeline (≥24-inch diameter) ROW avoidance areas (see Appendix A; Figure 2-11a). Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat. In OHMAs, apply MD SSS 4.	**MD LR 6:** PHMAs and GHMAs are designated as major pipeline (≥24-inch diameter) ROW avoidance areas (see **Appendix A; Figure 2-11**), unless the major pipeline line meets one of the allocation exception criteria outlined in **MD SSS 5.** Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat. In OHMAs, apply MD SSS 4.	Completely Revised.
MD LR 7: Issue ROWs only after documenting that they will not adversely affect or disrupt GRSG habitat (independent of disturbance cap), except where such limitation will make accessing valid existing rights impracticable in PHMAs and GHMAs.	No changes made.	Completely Revised.

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MD LR 8: Manage PHMAs as avoidance areas for ROWs (including permits and leases) (see Appendix A; Figure 2-11b). These do not include the wind, solar, or high-voltage transmission line and major pipeline ROW actions, above.	**MD LR 8:** Manage PHMAs as avoidance areas for ROWs (including permits and leases) (see **Appendix A; Figure 2-11)**, unless the ROW meets one of the allocation exception criteria outlined in **MD SSS 5.** These ROWs do not include the wind, solar, or high-voltage transmission line and major pipeline ROW actions, above.	No change (same as 2019).
MD LR 9: Manage GHMAs as open to ROWs (including for permits and leases) (see Appendix A; Figure 2-11b). These do not include the wind, solar, or high-voltage transmission line and major pipeline ROW actions, above.	No changes made.	No change (same as 2015).
MD LR 10: In PHMAs, bury new distribution power and communication lines in existing disturbed areas, unless it would not be technically feasible, or the cost would prohibit the proponent from providing the service. Where burying transmission lines is not feasible, locate new transmission lines next to existing linear disturbances, when possible; additional mitigation will be required.	No changes made.	No change (same as 2015).
MD LR 11: When renewing or amending ROWs (including permits and leases), assess the impacts of ongoing use of the ROW on GRSGs and their habitat and minimize such impacts to the extent allowed by law.	No changes made.	No change (same as 2015).
MD LR 12: When renewing or amending ROWs that are undeveloped, work with ROW holders to bury or relocate authorized but undeveloped lines to minimize impacts on PHMAs, unless this would not be technically feasible or would be contrary to policy. Where burying transmission lines is not feasible, locate new transmission lines next to existing linear disturbances, when possible.	No changes made.	No change (same as 2015).

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MD LR 13: In PHMAs and GHMAs where existing ROWs, permits, or leases are no longer in use, coordinate with the authorized holder to relinquish the authorization and reclaim the site by removing the infrastructure.	No changes made.	No change (same as 2015).
MD LR 14: Stipulate site relinquishment and reclamation in all new, amended or renewed ROWs, permits, and leases.	No changes made.	No change (same as 2015).
MD LR 15: In PHMAs and GHMAs, site new linear features in designated corridors, as identified in Appendix A, Figure 2-10, or at a minimum, collocate with existing linear features. Construct new ROWs in designated corridors as close as technically feasible to existing linear ROW infrastructure to limit disturbance to the smallest footprint.	No changes made.	Completely Revised.
MD LR 16: Manage landfills and transfer stations on public lands to eliminate opportunities to attract and provide nesting, cover, or perches for predators.	No changes made.	No change (same as 2015).
MD LR 17: Within 4 miles of active and pending leks in GRSG habitat, require ROW, permit, and lease holders to retrofit those portions of power lines and other utility structures with nesting and perch- deterring devices. Do this during the renewal and amendment process if adverse effects, such as increased nest predation, on GRSG populations have been documented. This requirement shall be predicated on research and monitoring studies specific to power lines or other utility structures.	No changes made.	Completely Revised.
MD LR 18: In PHMAs and subject to valid existing rights, authorize new road ROWs only when necessary for public safety or administrative access, or if it will create no new surface disturbance.	No changes made.	No change (same as 2015).

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MD LR 19: In PHMAs and GHMAs, address access to valid existing rights to provide the minimum access necessary to exercise the right and maintain or enhance PHMAs and GHMAs.	No changes made.	No change (same as 2015).
MD LR 20: Consider the likelihood of development of not-yet-constructed surface-disturbing activities – as defined in Table 2 of the Monitoring Framework (Appendix D)−under valid existing rights prior to authorizing new projects in PHMA.	No changes made.	No text changes (same as 2015), but Appendix D has been completely revised.
Management Decisions (MD): ***Land Tenure***	***Management Decisions (MD):*** ***Land Tenure***	—
MD LR 21: Lands classified as PHMAs and GHMAs for GRSG will be retained in federal management, unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will provide a net conservation gain to GRSG or (2) the agency can demonstrate that the disposal, including land exchanges, of the lands will have no direct or indirect adverse impact on conservation of the GRSG (see Appendix A; Figure 2-12).	**MD LR 21:** Exceptions to non-disposal or exchange of lands that are identified for retention in Appendix A, Figure 2-12 could be considered if (a) they are identified for disposal through previous planning efforts or address a Congressional Act (e.g., the respective Lincoln and White Pine County Conservation, Recreation, and Development Acts), (b) the agency can demonstrate that the disposal, including land exchanges, will have no adverse direct, indirect or cumulative impacts on GRSG and its habitat, or (c) adverse impacts on GRSG or its habitat will be offset, through use of voluntary compensatory mitigation, consistent with the States' mitigation policies and programs, such as the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). Also see allocation exception criteria in MD SSS 5.	Completely Revised (MD SSS 5).
MD LR 22: Where significant conservation actions can be achieved in PHMAs and GHMAs, seek to acquire lands with intact subsurface mineral estate by donation, purchase, or exchange in order to best conserve, enhance, or restore GRSG habitat.	No changes made.	No change (same as 2015).

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MD LR 23: Manage lands acquired by exchange, purchase or easement as either PHMAs or GHMAs, in consideration of surrounding habitat.	No changes made.	No change (same as 2015).
Management Decisions (MD): Withdrawals	***Management Decisions (MD): Withdrawals***	—
MD LR 24: Recommend SFA for withdrawal from the General Mining Act of 1872, as amended; subject to valid existing rights (see Appendix A; Figure 2-5).	**MD LR 24 Removed**	No change (same as 2019).
RECREATION AND VISITOR SERVICES (REC)	***RECREATION AND VISITOR SERVICES (REC)***	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD REC 1: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD REC 2: Allow special recreation permits in PHMAs and GHMAs only if their effects on GRSG and its habitat are neutral or result in a net conservation gain.	**MD REC 2:** Allow special recreation permits in PHMAs and GHMAs only if their effects on GRSG and its habitat are neutral or beneficial.	No change (same as 2019).
MD REC 3: In PHMA, do not construct new recreation facilities (e.g., campgrounds, trails, trailheads, staging areas) unless the development will have a net conservation gain to GRSG and its habitat (such as concentrating recreation, diverting use away from critical areas, etc.), or unless the development is required for visitor health and safety or resource protection.	**MD REC 3:** In PHMA, do not construct new recreation facilities (e.g., campgrounds, trails, trailheads, staging areas) unless the facility meets one of the criteria outlined in **MD SSS 5.**	No change (same as 2019).
MD REC 4: Develop trail mapping and educational campaigns in PHMAs and GHMAs to reduce recreational impacts on GRSG and their habitat, including the effects of cross-country travel.	No changes made.	No change (same as 2015).

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TRAVEL AND TRANSPORTATION MANAGEMENT (TTM)	***TRAVEL AND TRANSPORTATION MANAGEMENT (TTM)***	—
OBJECTIVE	***OBJECTIVE***	—
Objective TTM 1: Prioritize and complete transportation planning in PHMAs and GHMAs that provides for reasonable access to public lands for administration and recreation and that minimizes proliferation of user-created routes (e.g., roads, primitive roads, and trails).	No changes made.	No change (same as 2015).
Management Decisions (MD):	***Management Decisions (MD):***	—
MD TTM 1: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat.	No changes made.	No change (same as 2015).
MD TTM 2: In areas where travel planning has not been completed, limit off-highway vehicle (OHV) travel to existing routes in PHMAs and GHMAs (subject to valid existing rights, such as for a mine under a plan of operations) until subsequent implementation-level travel planning is completed and a designated route system is established. In travel management plans that have been completed and are being implemented (e.g., northeastern California plans), continue to limit OHV travel to designated routes in PHMAs and GHMAs (see Appendix A; Figure 2-13).	No changes made.	No change (same as 2015).

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MD TTM 3: Allow the goals, objectives, and actions in relevant national OHV guidance to guide subsequent implementation-level travel planning efforts. In addition, the following guidelines will be considered when undertaking future implementation-level travel planning: • Identify, prioritize, and update annually a timeline to complete travel planning in all relevant planning areas to accelerate data collection, route evaluation and selection, and on-the-ground implementation, including signing, monitoring, and rehabilitation. • Consult with interested user groups, federal, state, county, and local agencies, local landowners, and other parties to provide an opportunity for the public to express itself and have its views considered. Consequently, incorporate a public outreach plan to fully engage all interested stakeholders into future travel management plans. • Among other route evaluation criteria, incorporate criteria from 43 CFR, Part 8342.1, and specifically section (b), "areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats." • Evaluate all routes to determine the purpose and need and the potential resource or user conflicts from motorized travel. Where resource or user conflicts outweigh the purpose and need for the route, consider closing the route or relocating it outside of PHMAs and GHMAs. Evaluate for administrative access only routes not required for public access or recreation against current administrative/agency purpose or need.	No changes made.	No change (same as 2015).

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Consider closing routes that are duplicative, parallel, or redundant. • Consider seasonal restrictions (see Actions SSS 2 and SSS 3) on motorized travel use PHMAs and GHMAs where motorized vehicle use is a threat. Consider limiting over snow vehicles (OSVs) designed for use on a track or tracks or a ski or skis, while in use to designated routes or consider seasonal closures in GRSG wintering areas from November 1 through February 28. • Consider the need for restricting motorized vehicles, including their sound levels (Actions SSS 2 and SSS 3), speed and design (e.g., motorcycles, ATVs, and UTVs). • Consider scheduling road maintenance to avoid disturbance during sensitive GRSG life-cycle periods to the extent practicable. Consider using time of day, seasonal, and noise restrictions (see Actions SSS 2 and SSS 3) to reduce impacts on GRSG seasonal habitat. • In PHMAs and GHMAs, close to motorized travel those roads, primitive roads, and trails not designated in travel management plans. • In PHMAs and GHMAs, prioritize restoring routes not designated in a travel management plan. Obliterate and seed roads, primitive roads, and trails not designated in travel management plans, with appropriate seed mixes and transplanted sagebrush when applicable. Use fire-resistant species as fuel breaks where appropriate. Seed must be certified weed free.	*(see above)*	*(see above)*
MD TTM 4: In PHMAs and GHMAs, where new roads are necessary for public safety, administration, or public need, consider limiting route construction to realignments of existing routes where possible.	No changes made.	No change (same as 2015).

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MD TTM 5: In PHMAs and GHMAs, work with local governments to minimize upgrading existing routes that will change route category (e.g., road, primitive road, or trail) or capacity, unless the upgrade will maintain or enhance GRSG habitat, provide a fuel break to protect native vegetation, will be necessary for public safety, or will eliminate the need to construct a new road.	No changes made.	No change (same as 2015).
MD TTM 6: In PHMAs and GHMAs, temporary closures will be considered in accordance with 43 CFR, Subpart 8364 (Closures and Restrictions), 43 CFR, Subpart 8351 (Designated National Area), 43 CFR, Subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties), and 43 CFR, Subpart 8341 (Conditions of Use). Temporary closure or restriction orders under these authorities are enacted at the discretion of the authorized officer to resolve management conflicts and protect persons, property, and public lands and resources. where an authorized officer determines that off-highway vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence (43 CFR, Part 8341.2). A closure or restriction order shall be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders shall be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.	No changes made.	No change (same as 2015).

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Cultural Resources (CUL)	**Cultural Resources (CUL)**	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD CUL 1: Do not restrict tribal access to view GRSG breeding behavior for a tribe's traditional lifeways.	No changes made.	No change (same as 2015).
MD CUL 2: Do not prohibit tribal access to traditional locations for cultural practices in PHMAs and GHMAs.	No changes made.	No change (same as 2015).
MD CUL 3: Do not prohibit tribal collection of seeds, vegetation, or medicinal plants related to traditional cultural practices in PHMAs and GHMAs.	No changes made.	No change (same as 2015).
Mitigation (MI)	**Mitigation (MI)**	—
Management Decisions (MD):	***Management Decisions (MD):***	—
MD MIT 1: In Nevada, coordinate with the SETT on the application of a compensatory mitigation program, such as the Nevada Conservation Credit System (CCS) (**Appendix N**) for mitigating activities that result in habitat loss and degradation of GRSG habitat in Nevada, where the application of compensatory mitigation will occur on, or the credit will be applied to disturbance on BLM-administered lands.	**MD MIT 1:** When authorizing third-party actions in GRSG HMAs, the BLM will seek to achieve the planning-level GRSG management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Management will be consistent with the GRSG goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations "to minimize or eliminate threats affecting the status of [GRSG] or to improve the condition of [GRSG] habitat" across the planning area. The BLM has determined that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of BLM-administered lands (IM 2019-018, Compensatory Mitigation, December 6, 2018). Consistent with that determination, compensatory mitigation must be voluntary unless required by other applicable laws, but the BLM recognizes that	Partially revised - updated due to regulation and policy changes.

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
(see above)	state authorities may also require compensatory mitigation. To align this planning effort with the BLM's compensatory mitigation policy, IM 2019-018, the amended plans clarify that the BLM will consider compensatory mitigation only when offered voluntarily by a project proponent, when required by a law other than FLPMA; or as a component of compliance with a state mitigation plan, program, or authority, such as required by State of Nevada Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). In accordance with the State's goals for managing Greater Sage-Grouse, the plans modify the net conservation gain standard for compensatory mitigation to clarify that the BLM would pursue net benefit/net conservation gain as a broader planning goal and objective. This means that the BLM would continue to require avoidance, minimization, and other onsite mitigation to adequately conserve Greater Sage-Grouse and its habitat, while remaining committed to implementing beneficial habitat management actions to reduce the threats of fire and invasive species. In fiscal year 2018, the BLM funded approximately $29 million in sage-grouse management actions resulting in approximately 500,000 acres of treated sage-grouse habitat and expects to invest another $22.5 million of habitat management projects in fiscal year 2019 in the Great Basin Region. The BLM would continue to apply the mitigation hierarchy as described in the CEQ regulations at 40 CFR 1508.20; however, the BLM would focus on avoiding, minimizing, rectifying, and reducing impacts over time. Compensation, which involves	*(see above)*

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
(see above)	replacing or providing substitute resources for the impacts (including through payments to fund such work), would be considered only when voluntarily offered by a proponent, required by a law other than FLPMA, or to meet a State requirement. The BLM commits to cooperating with the State to analyze applicant-proposed or state-imposed compensatory mitigation to offset residual impacts. The BLM remains committed to achieving the planning-level management goals and objectives identified in this ROD and the 2015 ARMPA by ensuring Greater Sage-Grouse habitat impacts are addressed through implementing mitigating actions consistent with the governing RMP. In all GRSG habitat, before authorizing third-party actions that result in habitat loss and degradation within the State of Nevada, the BLM will complete the following steps, in alignment with the State of Nevada's Greater Sage-Grouse Conservation Plan (2014, as amended), including avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions: 1. Notify the State of Nevada's Sagebrush Ecosystem Technical Team to determine if the State requires or recommends any mitigation – including avoidance, minimization, or compensatory mitigation – under the States' regulations, policies, or programs, such as required by the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law), related to the conservation of GRSG.	*(see above)*

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
(see above)	2. Incorporate the States' required or recommended mitigation into the BLM's NEPA decision-making process, if the State of Nevada's Sagebrush Ecosystem Technical Team determines that there are unacceptable residual impacts on GRSG or its habitat and compensatory mitigation is required as a part of the State's policy or authorization, such as required by the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law), or if a proponent voluntarily offers mitigation. 3. Verify that the project proponent has coordinated with the State of Nevada's Sagebrush Ecosystem Technical Team to ensure it complies with the State of Nevada's Greater Sage-Grouse Conservation Plan (2014, as amended) and all applicable State requirements relating to its proposal. The BLM will cooperate with the States to determine appropriate project design and alignment with the States' policies and requirements, including those regarding compensatory mitigation, such as the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a requirement of or recommendation from the States, the BLM's NEPA analysis will evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this	*(see above)*

2015 BLM GRSG Approved RMP Amendment (as maintained)	2019 BLM GRSG Approved RMP Amendment (as maintained)	2025 BLM GRSG Approved RMP Amendment
(see above)	Approved RMPA. With respect to any State compensatory mitigation requirements, the BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action. The BLM will not deny a proposed authorization in GRSG habitat solely on the grounds that the proponent has not proposed or agreed to undertake voluntary compensatory mitigation, unless required by an existing States' authority such as the State of Nevada's Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law). The BLM will ensure project design is aligned with the States' requirements—including compensatory mitigation—that may be necessary to comply with State's policies and programs for the conservation of GRSG. Where compensatory mitigation is required as part of a States' plan, program, or authority, such as Nevada State Executive Order 2018-32 (and any future regulations adopted by the State of Nevada regarding compensatory mitigation, consistent with federal law), the BLM will include the required mitigation in all of its action alternatives in a NEPA analysis.	*(see above)*
MD MIT 2: Identify compensatory mitigation areas in PHMAs and GHMAs with the potential to achieve GRSG habitat objectives (**Table 2-2**), in accordance with FIAT, the SFA prioritization, and the State of Nevada Strategic Action Plan.	**MD MIT 2:** On BLM-administered lands within Nevada and California, when authorizing third-party actions that will result in direct, indirect, or cumulative impacts on GRSG or their habitat, the BLM will defer to the State of Nevada's most current version of the Habitat Quantification Tool (HQT) to quantify those impacts to ensure consistency in tracking and reporting changes to GRSG habitat quality and quantity.	No change (same as 2019).

RELEVANT APPENDICES

The following table shows which appendices from the 2015 and 2019 plans have management direction that will change as a result of this Approved RMP Amendment. If 2019 is not listed in the year, then no change was made to the appendix between the 2015 and 2019 plans. The 2015 and 2019 Appendices can be found on the Nevada and Northeastern California GRSG ePlanning website.

ARMPA Appendix Name	Year	2025 BLM GRSG Approved RMP Amendment
A: Approved RMP Amendment Maps	2015, 2019	Completely Revised.
B: Applying Lek Buffer-Distances When Approving Actions	2015, 2019	Partially Revised – Same as 2019 with updated mitigation reference
C: Required Design Features	2015, 2019	No change (same as 2019).
D: Greater Sage-Grouse Monitoring Framework	2015, 2019	Completely Revised.
E: Greater Sage-Grouse Disturbance Cap Guidance	2015, 2019	Partially Revised – disturbance cap section of the Approved RMP Amendment
F: Regional Mitigation Strategy; (*Removed in 2019)*	2015	No change (still removed) - appendix not carried forward and is described in the mitigation section of the Approved RMP Amendment
G: Fluid Mineral Stipulations, Waivers, Modifications, and Exceptions	2015, 2019	Partially Revised – updated exceptions, modifications, and waivers
H: Fire and Invasives Assessment Tool	2015	No change (same as 2015).
I: Avoid, Minimize and Apply Compensatory Mitigation; (*Removed in 2019)*	2015	No change (still removed) - appendix not carried forward and is described in the mitigation section of the Approved RMP Amendment
J: Adaptive Management Plan	2015, 2019	Completely Revised.
M: Greater Sage-Grouse Noise Protocol	2015	No change (same as 2015).
New		New: Grazing BMP Appendix

Appendix 3

Greater Sage-grouse Monitoring Framework

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Appendix 3. Greater Sage-grouse Monitoring Framework

3.1 FORWARD

The revised Bureau of Land Management (BLM) Greater Sage-Grouse (GRSG) Monitoring Framework was developed after five years of implementing the 2015 BLM and United States Forest Service (USFS) GRSG Monitoring Framework which culminated in the 2020 Greater Sage-Grouse Five-year Monitoring Report. Since implementing the monitoring efforts described in the original Monitoring Framework, new data has become available and new approaches to analyzing these data have been developed. This update maintains the existing measures included in the original document and expands upon them to include this new science. Measures for monitoring are identified at two scales: the rangewide scale and land use plan (LUP) scale. The former will provide insight into habitat conditions and BLM management actions across jurisdictional boundaries which will, in turn, provide context to the smaller scale LUP monitoring described herein. For each scale of monitoring a suite of 6 measures are identified and a methodology which the BLM will utilize to collect information informing each measure is described. Importantly, specific datasets and analysis approaches may be modified through the implementation of this monitoring framework so that BLM can adapt to new information as it becomes available. The data collected and analyzed for each of the measures described at both scales will vary in spatial extent. For example, measures leveraging remotely sensed data can and will be examined across all habitat management areas (HMAs) within the planning area as well as the BLM managed subset of these habitats. Other measures will apply specifically to BLM managed habitats or subsets thereof (i.e. disturbance and density caps). Further, LUP decisions may identify specific spatial extents at which some measures are analyzed and tracked, such as to inform adaptive management threshold status. As such, during the implementation of this monitoring framework, the spatial extent of all monitoring and analyses addressing the identified measures will be documented and communicated during effectiveness evaluation efforts.

This Monitoring Framework is related to several other pieces of larger LUPs and associated management direction they provide. The GRSG Monitoring Framework leverages data, information, and assessments to monitor LUP implementation. Appendix 4 of this LUP establishes GRSG habitat objectives, indicators, and benchmarks. These indicators and benchmarks are utilized in the Habitat Assessment Framework (HAF). The results of these habitat assessments inform the wildlife and/or sensitive species component of the Land Health Standards (LHS) evaluation process (43 CFR 4180.2). The GRSG Monitoring Framework provides a consistent format for reporting if the LUP objectives are being met or making progress to being met, based on the results of these assessment and planning tools.

Table 3-1. Relationships of LUPs, HAF, LHS, and Monitoring Framework

LUP	GRSG HAF	LHS Evaluation	GRSG Monitoring Framework
Sets GRSG habitat objective(s) and identifies the GRSG habitat indicators and benchmarks from best available science for evaluating progress toward meeting the objective.	Provides methods to assess GRSG habitats at multiple scales, using the indicators and benchmarks from the applicable LUP Habitat Indicators appendix.	Evaluates if the sage-grouse portion of the Special Status Species/Wildlife Habitat (SSS/WL) LHS is achieved or significant progress towards achievement is made. These evaluations utilize HAF results along with other data.	Provides framework for reporting progress toward achieving the objective(s) of the LUP, including habitat suitability.

3.2 SECTION I: RANGEWIDE MONITORING

3.2.1 Introduction

This rangewide monitoring section of the BLM Revised GRSG Monitoring Framework is an update from the original BLM and USFS GRSG Monitoring Framework (2015) expands and clarifies the BLM's GRSG rangewide habitat condition monitoring and reporting. Described here are the six measures (**Table 3-2**), and associated updated methodologies, incorporating the original monitoring measures from 2015 (habitat condition and habitat degradation) with additional measures (land cover, habitat indicators, habitat suitability and population trend) that guide the BLM's GRSG monitoring and reporting.

The information gathered from monitoring and reporting on the six rangewide measures (**Table 3-2**) is intended to inform an evaluation of BLM's effectiveness (Section III of this BLM Revised GRSG Monitoring Framework) toward meeting the BLM's overarching goal for GRSG: *to conserve and manage GRSG habitats to support persistent, healthy populations, consistent with BLM's sensitive species policy and in cooperation with other conservation partners. Conservation and management should maintain existing connectivity between GRSG populations.*

Table 3-2. The Six Rangewide Monitoring Measures, Associated Sub-Measures, Monitoring Questions and Data Sources for BLM Monitoring of GRSG Habitat Conditions and Population Trends

Measures	Monitoring Questions	Data
Measure 1: Vegetation Availability and Condition		
Measure 1a: Vegetation Condition and trend	What is the status and trend of the habitat indicators describing habitat characteristics important to GRSG as well as ecological threats to GRSG (e.g., annual invasive grasses, bare ground) on BLM lands?	BLM Assessment, Inventory, and Monitoring (AIM)
Measure 1b: Current and Historical Amounts of Sagebrush	What is the current versus historical extent of sagebrush within GRSG habitat? How have recent disturbances (fires and treatments) affected the extent of sagebrush?	LANDFIRE
Measure 1c: Percent Sagebrush Cover and Trend	What is the percent cover of sagebrush and trend in sagebrush percent cover?	Rangeland Condition Monitoring Assessment and Projection (RCMAP)
Measure 1d: Percent Annual Herbaceous Cover and Trend	What is the percent cover and trend of annual herbaceous cover?	RCMAP

Measures	Monitoring Questions	Data
Measure 1e: Percent Tree Cover within Sagebrush	What is the percent cover and trend of tree cover in sagebrush communities?	RCMAP
Measure 2: Habitat Degradation and Development Intensity in GRSG Habitat		
Measure 2a: Habitat degradation	What is the estimated amount of habitat degradation rangewide and the estimated change in the amount?	Geospatial analysis using datasets representing anthropogenic development
Measure 2b: Intensity of degradation	What is the estimated density of energy development activities and the change in the estimated density?	Geospatial analysis using datasets representing anthropogenic development
Measure 2c: Degradation cap compliance	Were any disturbance or density caps above project scale exceeded?	Geospatial analysis using datasets representing anthropogenic development
Measure 2d: Reclamation	What is the amount of reclaimed energy-related degradation on BLM lands and the change in the amount?	Geospatial analysis using datasets representing reclamation on BLM-managed lands
Measure 3: GRSG Habitat Suitability		
Measure 3a: Habitat assessment status	What is the status of GRSG habitat assessments at the mid- and fine-scales across the range?	BLM's HAF tracking system
Measure 3b: Habitat suitability at mid and fine scales	What is the suitability of GRSG habitats at mid and fine spatial scales across the range?	BLM's HAF tracking system
Measure 4: Achievement of LHS in GRSG Habitat		
Measure 4a: Status of land health evaluations	How many acres were evaluated for achievement of the SSS/WL LHS in GRSG habitat across the range?	BLM's LHS Database
Measure 4b: Status of LHS	For areas that have been evaluated in GRSG habitat, what is the status of land health and what are the causes of non-achievement (as applicable)?	BLM's LHS Database
Measure 5: BLM On-The-Ground Conservation and Restoration Efforts for GRSG		
Measure 5a: Summary of conservation efforts	How many acres/miles were conserved or restored by treatment or action type in GRSG habitat across the range?	National Fire Plan Operations and Reporting System/Vegetation Management Action Portal, Other BLM Project Tracking
Measure 6: GRSG Population Trend Rangewide		
Measure 6a: Annual Range-wide Trend	What is the rangewide average annual population trend?	United States Geological Survey (USGS) Rangewide Population Trend Analysis for GRSG
Measure 6b: Cumulative Range-wide Trend	What is the rangewide cumulative population trend?	USGS Rangewide Population Trend Analysis for GRSG

3.2.2 Methods

The datasets used, and the land ownerships included in the data, vary by monitoring type. For example, the monitoring of habitat indicators uses on-the-ground data and information from BLM lands only. Conversely, the rangewide monitoring of landcover, sagebrush availability and disturbance use geospatial data covering all land ownerships. The population trend monitoring uses state wildlife agencies' data that also covers all land ownership in GRSG habitat. Best available datasets outlined here will be used to analyze the monitoring measures and for reporting on GRSG habitat however BLM reserves the right to change data and analysis methods as it deems appropriate.

Measure 1. Vegetation Availability and Condition

Sagebrush availability and vegetation condition analyses are analyzed rangewide for GRSG, excluding the Bi-State Distinct Population Segment and the Columbia Basin population. Analyses differ in the timeframe and type of data used (remotely sensed products versus collected on the ground), the lands to which the analyses apply (all lands versus BLM-managed lands), and in GRSG habitat.

Datasets selected for monitoring must meet key criteria to ensure consistent and accurate monitoring:

- The dataset must be consistent rangewide
- There must be a known accuracy level or level of confidence for the dataset
- The dataset must be based in peer-reviewed science
- The dataset must be maintained and have a known update plan
- The dataset must be readily available
- Consistent methodology must have been used to derive datasets that are compared; different datasets may be used to calculate different measures.

The following datasets, which meet the key criteria, should be analyzed for Measure 1; however, additional data and analyses may also be considered, if justified and documented:

1. BLM AIM for 1a,
2. LANDFIRE (Picotte et al. 2016) for 1b and
3. RCMAP (Rigge et al. 2022) for 1c, 1d, and 1e.

We considered three types of fractional datasets for calculating Measures 1c, 1d, and 1e. Fractional datasets contain pixels or cells that represent areas on the ground which may each contain vegetation cover types such as sagebrush, trees, or herbaceous. A fractional dataset represents the percentage of one vegetation cover type that is present in each pixel (e.g., 50 percent sagebrush, 25 percent trees, or 25 percent herbaceous). The three datasets considered, that are new since the 2015 BLM/USFS GRSG Monitoring Framework, are:

- Landscape Cover Analysis and Reporting Tools (LandCART; Zhou et al. 2020),
- Rangeland Analysis Program (RAP; Allred et al. 2021), and
- RCMAP.

Accuracies and applicability for the three types of datasets are similar but mixed. BLM Tech Note 456, which compares these datasets, recommends that users consider their individual data needs and uses when selecting from them (Savage et al. 2022). **Table 3-3** summarizes some characteristics of the datasets specifically considered for this BLM Revised GRSG Monitoring Framework and, although not comprehensive, reflects the intent to use RCMAP. RAP does not have a sagebrush dataset and it is currently difficult to obtain rangewide data from LandCART but improvements are in progress. Importantly, BLM partners with USGS to fund RCMAP, ensuring the reliability of readily available data, regular updates and maintenance, and data suited for use in this BLM Revised GRSG Monitoring Framework. See **Appendix B, Table B2** for the RCMAP Accuracy Assessment. We recommend using only one data type (for 1c, 1d, & 1e) such that data can be overlaid or compared without concern for different methods that created the data. If additional fractional datasets become available and fit the key criteria above, they may be considered for use in calculating the Measures 1c, 1d, and 1e.

Table 3-3. Dataset Characteristics For Measure 1c, 1d, And 1e

Dataset Characteristics	LandCART	RAP	RCMAP
Annual herbaceous	Y	Y	Y
Sagebrush	Y	N	Y
Tree cover	Y	Y	Y
Rangewide extent	Difficult	Y	Y
Trend	Y	User calculates	Y

Measure 1a: What is the status and trend of the habitat indicators and threats to GRSG (e.g., non-native invasive grasses, bare ground) on BLM lands?

The vegetation condition monitoring is based on estimates for 6 GRSG habitat indicators (e.g., sagebrush cover) and estimates of 7 threat indicators (e.g., invasive species) (Herrick et al. 2017). These estimates will be based on field data collected through the BLM's national monitoring efforts on BLM-managed rangeland ecosystems. These data are part of the AIM program including the National AIM Survey (also known as the Landscape Monitoring Framework, Yu Li et al. 2020 and generally described in Karl et al. 2016). The AIM estimates provide consistent and standardized data about vegetation conditions broadly across the range.

The 6 GRSG habitat indicators are:

1. Percent cover of sagebrush
2. Mean sagebrush species height
3. Proportion of sagebrush that is spreading shaped
4. Percent cover of perennial grasses and perennial forbs
5. Mean herbaceous plant species height
6. Percent of lands where native plants make up 95 percent or more of vegetation cover

The 7 threat indicators are:

1. Proportion of sagebrush that is columnar shaped
2. Percent cover of bare ground
3. Proportion of nonnative invasive species present
4. Proportion where greater than or equal to 5 percent of foliar cover is comprised of nonnative invasive species

5. Proportion of vegetation composed of annual grasses
6. Proportion of vegetation composed of nonnative invasive plant species
7. Percent of lands with greater than 3 percent cover of pinion – juniper.

The vegetation condition summary is reported for BLM-managed GRSG habitats. Also of importance is that the data is collected in areas that retain rangeland vegetation and exclude areas physically converted to agriculture or disturbance from development.

The estimates combine indicator data from all sampling locations collected within a given year. An analysis for trend will be performed for each of these indicators. Analysis details will be included in monitoring reports.

Measure 1b: What is the current versus historical extent of sagebrush within the range of GRSG? How have recent disturbances affected the extent of sagebrush?

Measure 1b estimates both historic and current extent of sagebrush. The datasets to calculate these metrics are the most recent LANDFIRE Biophysical Setting (BpS), Existing Vegetation Type (EVT), Existing Vegetation Cover (EVC), and Existing Vegetation Height (EVH). EVT will be adjusted for recent fires and BpS will be adjusted for sagebrush areas in EVT (see below for details). LANDFIRE data meets the key criteria defined above and has ample thematic resolution with several different sagebrush vegetation classes. For the 2015 Monitoring Framework, vegetation classes from LANDFIRE EVT and BpS were selected to use in the sagebrush and sagebrush potential or historic layers by identifying the classes that include sagebrush species and that could provide suitable seasonal habitat for GRSG (See **Appendix A, Table A1**). In these classes, sagebrush may not be the dominant species, but it is an attempt to include the maximum likely geographic extent and some of the uncertainty on the ground captured by products derived from remotely sensed data (see **Appendix B, Table B1** for Agreement Assessment details). The sagebrush layer used for reporting will be created using these selected classes from EVT. The following two metrics will be reported for each year:

1) 1.b.1. The amount of sagebrush in GRSG habitat compared with the amount of sagebrush that GRSG habitat could historically support without disturbance, that is, the existing sagebrush versus the potential sagebrush. The measure will be calculated as [the existing area of sagebrush] divided by [the potential area of sagebrush expected pre-Euro American settlement]. The data will be summarized including a histogram, mean and standard deviation, and median and quartiles for GRSG habitat.
2) 1.b.2. Recent vegetation treatments (National Fire Plan Operations and Reporting System and Vegetation Management Action Portal data) are integrated into some LANDFIRE data causing changes in EVH and EVC datasets but these changes are not reflected in EVT for now, although this may change (personal communication Daryn Dockter, Brian Tolk, May 2023). BLM will use EVH and EVC with EVT to determine how recent treatments affect the extent of sagebrush using the guidelines:
    a. If EVT = sagebrush but EVH or EVC = 0 for shrubs, then disturbance has likely removed the sagebrush. These pixels will be removed from the EVT dataset annually.
    b. If EVT = sagebrush and EVH = grass less than 1.0 meter, past disturbance has likely removed the sagebrush and grass or forbs are growing. These pixels will be removed from the EVT dataset annually.
    c. If EVT = sagebrush and EVH = shrub 1 to 3 meters then there is likely sagebrush here. These pixels will be retained in the EVT dataset annually.

d. These changes will be summarized across GRSG habitat.

LANDFIRE EVT includes fires burned up to the end of the previous fiscal year so updates will be needed for more recent fires and can be made using NIFC WFIGS *yyyy*, Interagency Fire Perimeters to Date (where *yyyy* is the current year). LANDFIRE processes postfire change detection using satellite imagery and Monitoring Trends in Burn Severity program. See below for LANDFIRE data accuracy and update details.

In EVT there are small areas that show sagebrush and sagebrush associated classes which are not matched in the BpS dataset. Based on the assumption that sagebrush is unlikely to expand in the short term, we assume that BpS is in error and these classes in BpS need to be adjusted to the classes shown in EVT. This adjustment supports the simple division of existing by potential sagebrush that is described above.

Because of concerns over the thematic accuracy of individual classes mapped by LANDFIRE, all ecological systems listed in **Appendix A, Table A1** will be aggregated into three groups that represent sagebrush, sagebrush associated, and other vegetation types. With all ecological systems aggregated, the combined accuracy, measured as an agreement assessment, of the sagebrush base layer (EVT) will be much greater than if all categories were treated separately (LANDFIRE 2016 Remap EVT Agreement Assessment). We used the Southwest (Arizona, California, Nevada, Utah, west Colorado, and west New Mexico) and Northwest GeoAreas (Idaho, Montana, Oregon, Washington, and Wyoming) to estimate sagebrush assessment agreements where sagebrush, sagebrush associated, and other field data are assigned autokeys and these are compared to LANDFIRE EVT (**Appendix B, Table B1**). The Southwest GeoArea agreement assessments were 55 percent for sagebrush, and 50 percent for sagebrush associated. The Northwest GeoArea agreement assessments were 69 percent for sagebrush and 57 percent for sagebrush associated.

LANDFIRE maintains a substantial disturbance spatial database using agency and other data; refinements to the process were made in 2020 with plans to update annually. LANDFIRE also uses National Landcover Database (NLCD) roads and urban classes, the Monitoring Trends in Burn Severity program, Burned Area Reflectance Classification data, and Rapid Assessment of Vegetation Condition after Wildfire data to apply changes to the database on a yearly basis. LANDFIRE uses a change algorithm to account for fires and models postfire vegetation recovery. While LANDFIRE intends to update annually, refinements may still be made to the EVT data for more recent changes due to wildfire (see above) and anthropogenic disturbances such as agriculture and urban, using the processes and datasets recommended below.

LANDFIRE uses the NLCD (Fry et al. 2011) to make urban adjustments including imperviousness dataset; high, medium, and low development; roads; open space; and broad vegetation types. NLCD is prioritized over other datasets if there is a discrepancy in land cover. NLCD impervious data has a roads description including primary, secondary, and tertiary; two track roads are not included. NLCD obtains building footprints from Microsoft data and USGS processing. NLCD data are generated on a 5-year cycle and are specifically designed to support monitoring efforts but the lag in NLCD may limit LANDFIRE data. To determine agricultural areas and types, LANDFIRE uses the annually updated National Agricultural Statistics Service Cropland Data Layer. The LANDFIRE disturbance processing will also pick up agricultural expansion and treatments when they are reported.

Measure 1c: What is the percent cover of sagebrush and trend in sagebrush percent cover?
Sagebrush fractional cover data will be used to estimate the current proportion of sagebrush in GRSG habitat. The most recent RCMAP fractional sagebrush cover will be used to calculate this measure (Rigge et al. 2022).

For each year of monitoring, the statistical distribution of percent sagebrush cover will be calculated and reported including a histogram, mean and standard deviation, and median and quartiles at spatial scales relevant to BLM LUP decisions and management, for example, HAF fine-scale extents. If updated literature suggests levels of percent sagebrush cover that are more appropriate to GRSG, these thresholds will be applied in addition to the standards described above. For example, if less than the literature-specified threshold of sagebrush is determined to be unsuitable for GRSG across GRSG habitat, an assessment of the area of and distribution that is above and below this cover threshold will be conducted.

Shi et al. (2022) modeled time-series trends in RCMAP continuous vegetation using two methods: 1) linear regression and 2) breaks and stable states modeling. We recommend using the linear trends results because, while accuracy was similar between the two modeling versions, linear trend results are more easily interpreted (Shi et al. 2022). For each pixel in the linear trends data, the slope represents the average percent cover change and the p-value is the confidence in the change value for each year. Within GRSG habitat, the trend of sagebrush cover will be monitored using the time-series linear trends data from RCMAP for all years of data to calculate the summary statistics as described above.

Measure 1d: What is the percent cover and trend of annual herbaceous cover?

The most recent RCMAP Annual Herbaceous fractional data will be used to estimate the current area, distribution, and proportion of annual forbs and grasses in GRSG habitat. In the Western US, the RCMAP annual herbaceous dataset primarily represents annual invasive species such as Cheatgrass, Medusahead, Red Brome, and annual mustards (Multi-Resolution Land Characteristics Consortium RCMAP website, https://www.mrlc.gov/data/rcmap-annual-herbaceous-cover-1, accessed March 2023). At higher elevations and in California, the annual herbaceous cover dataset may also represent native annual herbaceous vegetation types (Multi-Resolution Land Characteristics Consortium RCMAP website, https://www.mrlc.gov/data/rcmap-annual-herbaceous-cover-1, accessed March 2023).

For each year of monitoring, the statistical distribution of percent annual herbaceous cover will be calculated including a histogram, the mean and standard deviation, and median and quartiles at spatial scales relevant to BLM LUP decisions and management, for example, at HAF fine-scale extents. If updated literature suggests levels of percent annual herbaceous cover that are more appropriate to GRSG, apply these thresholds in addition to the standards described above. For example, if less than the literature-specified threshold of annual herbaceous cover is determined to be unsuitable for GRSG across GRSG habitat, assessments of and distribution of annual herbaceous cover that is above and below this cover threshold will be conducted.

The trend of annual herbaceous cover will be reported for all years of data using the annual time-series linear trends data from RCMAP to calculate the summary statistics described above. The trend of annual herbaceous cover will be compared to the trend in sagebrush cover in GRSG habitat.

Measure 1e: What is the percent cover and trend of tree cover in sagebrush communities?

Over the past several decades, many studies have found that GRSG avoid habitat near conifers (Nisbet et al. 1983, Doherty et al. 2010; Fedy et al. 2014; Doherty et al. 2016; Westover et al. 2016; Baxter et al. 2017; Picardi et al. 2020; Roth et al. 2022), survival tends to increase when GRSG inhabit areas further away from conifers (Brussee et al. 2022), and populations have increased when conifers are removed (Olsen et al. 2021).

For the purposes of the Monitoring Framework, an upper limit threshold is needed to determine the percent of conifer cover within a certain distance of sagebrush that still provides suitable habitat for GRSG (see **Appendix C, Table C1** for summaries). Peer-reviewed findings are summarized in the following bullets:

- **0 percent** In Nevada, GRSG preferred areas with no conifer cover for lekking (Nisbet et al. 1983) and for brood rearing to areas with 1 to 10 percent conifer cover (Brussee et al. 2022).
- **2 percent** In California, GRSG preferred less than 2 percent conifer cover year-round (Coates et al. 2017). In Nevada and Utah, GRSG preferred areas with less than 2 percent conifer cover for breeding and summer season (Beers et al. 2022).
- **3 percent** In Oregon and Utah, less than 3 percent conifer was found to be more suitable for GRSG lekking and nesting within 800 meters and 1000 meters (Cook et al. 2017), within 560 meters for lekking (Doherty et al. 2021), and within 800 meters for nesting (Severson et al. 2017).
- **4 percent** In Oregon, Nevada, and Utah, areas with less than 4 percent conifer cover were found to be more suitable for nesting (Sandford et al. 2017; Severson et al. 2017) or found to be more suitable year-round within 400 meters and 800 meters and while there was sagebrush contiguity (Beers et al. 2022). Areas with greater than 4 percent conifer cover had no active leks (Baruch-Mordo et al. 2013) or were found to be less suitable for lekking (Cook et al. 2017).

We examined other work that obtained values outside of this range and determined that they were not useful for our purposes. In California, large-scale evidence suggested that GRSG avoided areas with greater than 5 percent conifer cover for brood rearing; however, 5 percent was set as a value instead of being determined by the data, and subsequent modeling was inconclusive (Casazza et al. 2011). In Nevada and Utah, Beers et al. (2022) found that during winter, GRSG selected areas with less than 11 percent conifer cover, but year-round 4 percent was a more appropriate threshold. In Nevada, GRSG avoided areas with greater than 30 percent conifer cover and selected areas with 10 to 30 percent cover within 1000 meters; the authors speculated that these unusually high conifer cover values may have been in areas where heterogenous shrub communities thrived and, in the absence of predators, attracted GRSG (Gibson et al. 2015).

The range of 0 to 4 percent of tree canopy cover has been shown to have the lowest impacts on GRSG year-round in several states (**Appendix C, Table C1**). Within GRSG habitat the extent and summary statistics (histogram, mean and standard deviation, and median and quartiles) of tree cover that is within 1000m of sagebrush and 1) less than 4 percent and 2) greater than 4 percent will be calculated.

Within GRSG habitat, the trend of tree cover that is greater than 4 percent and is within 1000 meters of sagebrush will be calculated and reported for all years of data using the annual time-series linear trends data from RCMAP to calculate the summary statistics described above. The trend of tree cover will be compared to the trend in sagebrush cover in GRSG habitat at spatial scales relevant to BLM LUP decisions and management, for example, at HAF fine-scale extents.

Measure 2. Habitat Degradation and Development Intensity in GRSG Habitat

Rangewide disturbance estimates

The measure of habitat degradation will be calculated by combining estimated footprints of, or the counts of, threats identified in **Table 3-4** within GRSG habitat. Footprints are estimated to be the direct area of influence of "active" energy and infrastructure and, in combination with feature counts, will be used as a surrogate for human activity. Data sources for each threat are found in **Table 3-4**, Geospatial Data Sources for Habitat Degradation and Intensity Calculations (Measure 2) in GRSG Habitat Excluding the Bi-State

Distinct Population Segment and the Columbia Basin Population. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodologies are described below. All datasets will be updated annually to monitor changes through time and to inform adaptive management.

Table 3-4. Geospatial Data Sources for Habitat Degradation and Intensity Calculations (Measure 2) in GRSG Habitat Excluding the Bi-State Distinct Population Segment and the Columbia Basin Population

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil and gas)	Wells	Information Handling Services (IHS); BLM Automated Fluid Minerals Support System (AFMSS)	5.0 acres (2.0 hectares)	BLM WO-300
	Power Plants	Platts (power plants)	5.0 acres (2.0 hectares)	BLM WO-300
Energy (coal)	Mines	BLM; USFS; Office of Surface Mining Reclamation and Enforcement; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/ Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0 acres (1.2 hectares)	BLM WO-300
	Power Plants	Platts (power plants)	3.0 acres (1.2 hectares)	BLM WO-300
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3 acres (3.0 hectares)/mega watt	National Renewable Energy Laboratory
Energy (geothermal)	Wells	IHS	3.0 acres (1.2 hectares)	BLM WO-300
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7 feet (12.4 meters)	USGS
	Major Roads	Esri StreetMap Premium	84.0 feet (25.6 meters)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2 feet (73.2 meters)	USGS
Infrastructure (railroads)	Active Lines	Federal Railroad Administration	30.8 feet (9.4 meters)	USGS
Infrastructure (power lines)	1 to 199 kilovolt (kV) Lines	Platts (transmission lines)	100 feet (30.5 meters)	BLM WO-300
	200 to 399 kV Lines	Platts (transmission lines)	150 feet (45.7 meters)	BLM WO-300
	400 to 699kV Lines	Platts (transmission lines)	200 feet (61.0 meters)	BLM WO-300

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
	700+ kV Lines	Platts (transmission lines)	250 feet (76.2 meters)	BLM WO-300
Infrastructure (communication)	Towers	Federal Communications Commission	2.5 acres (1.0 hectares)	BLM WO-300
Infrastructure (other vertical structures)	Tall Structures	Federal Avian Administration	2.5 acres (1.0 hectares)	Knick et al. 2011

Rangewide Habitat Degradation Datasets and Assumptions

Energy (Oil and Gas Wells and Development Facilities)

This dataset will compile information from three oil and gas databases: the proprietary IHS database, the BLM Automated Fluid Minerals Support System (AFMSS) database, and the proprietary Platts (a McGraw-Hill Financial Company) GIS (hereafter, Platts) database of power plants.

Point data from wells active within the last 10 years from IHS and producing wells from AFMSS will be considered as a 5-acre (2.0-hectare) direct area of influence centered on the well point, as recommended by the BLM WO-300 (Minerals and Realty Management). Plugged and abandoned wells will be separated from the active oil and gas well dataset but retained for analysis inclusion if the date of well abandonment was before the first day of the reporting year (i.e., for the 2015 reporting year, a well must have been plugged and abandoned by December 31, 2014 to be removed).

Platts oil and gas power plants data (subset to operational power plants) will also be included as a 5-acre (2.0-hectare) direct area of influence.

Wells marked as plugged and abandoned within the last 10-years will also be segregated from the "active" and "active within the last 10 years" well data described above. These data attempt to quantify energy-related degradation that may have been reclaimed, but not necessarily fully restored to sage-grouse habitat. Direct area of influence will be considered 3 acres (1.2 hectares) (J. Perry, personal communication, February 12, 2014).

Energy (Coal Mines)

Currently, there is no comprehensive dataset available that identifies the footprint of active coal mining across all jurisdictions. Therefore, point and polygon datasets will be used each year to identify coal mining locations. Data sources will be identified and evaluated annually and will include at a minimum: BLM coal lease polygons, United States (U.S.) Energy Information Administration mine occurrence points, U.S. Office of Surface Mining Reclamation and Enforcement coal mining permit polygons (as available), and USGS Mineral Resources Data System mine occurrence points. These data will inform where active coal mining may be occurring.

Coal power plant data from Platts power plants database (subset to operational power plants) will be included. Aerial imagery will then be used to digitize manually the active coal mining and coal power plants surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to digitize (generally at 1:10,000 and below) active coal mine and power plant direct area of influence. Coal mine location data source and imagery date will be documented for each digitized coal polygon at the time of creation. Subsurface facility locations (polygon or point location as available) will also be collected if available, included in density

calculations, and added to the active surface activity layer as appropriate (if an actual direct area of influence can be located).

Energy (Wind Energy Facilities)

This dataset will be a subset of the Federal Aviation Administration (FAA) Digital Obstacles point file. Points where attribution indicates the feature is a windmill will be included. The direct area of influence of these point features will be a circular totaling 3 acres (1.2 hectares) centered on each tower point. See the BLM's "Wind Energy Development Programmatic Environmental Impact Statement" (BLM 2005). Additionally, the Platts power plants database will be used for transformer stations associated with wind energy sites (subset to operational power plants), also with the same 3-acre (1.2-hectare) direct area of influence.

Energy (Solar Energy Facilities)

This dataset will include solar plants as compiled with the Platts power plants database (subset to operational power plants). This database includes an attribute that indicates the operational capacity of each solar power plant. Total capacity at the power plant was based on ratings of the in-service unit(s), in megawatts. Direct area of influence polygons will be centered over each point feature representing 7.3 acres (3.0 hectares) per megawatt of the stated operational capacity, per the report of the National Renewable Energy Laboratory, "Land-Use Requirements for Solar Power Plants in the United States" (Ong et al. 2013).

Energy (Geothermal Energy Facilities)

This dataset will include geothermal wells in existence or under construction as compiled with the IHS wells database and power plants as compiled with the Platts database (subset to operational power plants). Direct area of influence of these point features will be measured by converting to a polygon dataset of 3 acres (1.2 hectares) centered on each well or power plant point.

Mining (Active Developments; Locatable, Leasable, Saleable)

This data theme is notably lacking in a comprehensive source spanning the range of GRSG. Currently, there are no known complete databases available for leasable or saleable mining sites beyond coal mines. Aerial imagery will be used to manually digitize large active mining surface disturbance in or near known occurrence areas originally informed by the proprietary InfoMine database. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to digitize (generally at 1:10,000 and below) active mine direct area of influence. Mine location data source and imagery date will be documented for each digitized polygon at the time of creation. Other data sources will be evaluated and used as they are identified or as they become available. Point data may be converted to polygons to represent direct area of influence unless actual surface disturbance is available.

Infrastructure (Roads)

This dataset will be compiled from the proprietary Esri StreetMap Premium for ArcGIS. Dataset features that will be used are: Interstate Highways, Major Roads, and Surface Streets to capture paved and "crowned and ditched" roads. The surface street data have been demonstrated to include some "two-track" and 4-wheel-drive routes. The direct area of influence for roads will be represented by 240.2 feet, 84.0 feet, and 40.7 feet (73.2 meters, 25.6 meters, and 12.4 meters) total widths centered on the line feature for Interstate Highways, Major Roads, and Surface Streets, respectively (Knick et al. 2011).

Infrastructure (Railroads)

This dataset will be a compilation from the Federal Railroad Administration Rail Lines of the USA dataset. Non-abandoned rail lines will be used; abandoned rail lines will not be used. The direct are of influence for

railroads will be represented by a 30.8-foot (9.4-meter) total width (Knick et al. 2011) centered on the non-abandoned railroad line feature.

Infrastructure (Power Lines)

This line dataset will be derived from the proprietary Platts transmission lines database. Linear features in the dataset attributed as "buried" will be removed from the disturbance calculation. Only "In Service" lines will be used; "Proposed" lines will not be used. Direct area of influence will be determined by the kV designation: 1 to 199 kV (100 feet/30.5 meters), 200 to 399 kV (150 feet/45.7 meters), 400 to 699 kV (200 feet/61.0 meters), and 700+ kV (250 feet/76.2 meters) based on average right-of-way and structure widths, according to BLM WO-300 (Minerals and Realty Management).

Infrastructure (Communication Towers)

This point dataset will be compiled from the Federal Communications Commission communication towers point file; all duplicate points within the dataset will be removed. Points will be converted to a polygon dataset by using a direct area of influence of 2.5 acres (1.0 hectares) centered on each communication tower point (Knick et al. 2011).

Infrastructure (Other Vertical Structures)

This point dataset will be compiled from the FAA's Digital Obstacles point file. This dataset generally captures all tall structures over 200 meters, with additional structures below this threshold captured in areas surrounding airports which could pose an aviation risk. For additional information please visit the FAA DOF FAQs site. Points where attribution indicates the feature is a windmill will be removed. Duplicate points from the Federal Communications Commission communication towers point file will be removed. The remaining features will be converted to a polygon dataset using a direct area of influence of 2.5 acres (1.0 hectares) centered on each vertical structure point (Knick et al. 2011).

Other Developed Rights-Of-Way

Currently, no additional data sources for other developed rights-of-way have been identified. Roads, power lines, railroads, pipelines, and other known linear features are represented in the categories described above. If additional features representing human activities are identified representing developed rights-of ways outside of the themes described above, they will be added to the degradation analyses using similar assumptions to those used with the threats described above.

Disturbance Inventories

The BLM has partnered with the USGS and, over the past several years, has begun inventorying existing disturbances via "heads-up" digitization using aerial imagery within current Priority Habitat Management Areas (PHMAs). This inventory includes several disturbance types in addition to those used in the rangewide analyses as outlined in the 2015 LUP disturbance appendices:

Coalbed Methane and Other Energy-Related Retention Ponds

The footprint boundary will follow the fence line and includes the area within the fence line surrounding the impoundment. If the pond is not fenced, the impoundment itself is the footprint. Other infrastructure associated with the containment ponds (roads, well pads, etc.) will be captured in other disturbance categories.

Meteorological Towers

This feature includes long-term weather monitoring and temporary meteorological towers associated with short-term wind testing. The footprint boundary includes the area underneath the guy wires.

Nuclear Energy Facilities
The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.

Airport Facilities and Infrastructure (Public And Private)
The footprint boundary will follow the boundary of the airport or heliport and includes mowed areas, parking lots, hangers, taxiways, driveways, terminals, maintenance facilities, beacons and related features. Indicators of the boundary, such as distinct land cover changes, fences and perimeter roads, will be used to encompass the entire airport or heliport.

Military Range Facilities and Infrastructure
The footprint boundary will follow the outer edge of the disturbed areas around buildings and includes undisturbed areas within the facility's perimeter.

Hydroelectric Plants
The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.

Recreation Areas and Facilities
This feature includes all sites/facilities larger than 0.25 acres in size. The footprint boundary will include any undisturbed areas within the site/facility.

Where this inventory is complete in GRSG habitat and if the digitization is within an acceptable timeframe (i.e. not deemed outdated), these disturbance data will also be used to evaluate the existing disturbance footprint and density of development.

Rangewide Habitat Degradation and Development Intensity Data Combination and Calculation Approaches
The threats targeted for measuring human activity (**Table 3-4**) and intensity of activities will be converted to direct area of influence polygons as described for each data source above. These threat polygon layers will be combined to create one overall polygon layer representing footprints of estimated active human activity in GRSG habitat. Individual datasets, however, will be preserved to indicate which types of threats may be contributing to overall habitat degradation. For intensity calculations, source data locations will be preserved with no additional removal beyond the methodology described above. Thus, overlapping inputs will be retained such that the density calculation reflects an overall intensity of development.

More complex disturbance and density estimation approaches may also be implemented, leveraging datasets described above, to facilitate a more complete picture of the level anthropogenic disturbance within GRSG habitat and potential impacts to GRSG habitats. For example, moving window analyses, which estimate development density within multiple spatial extents, can facilitate an understanding of potential direct and indirect effects of development on GRSG habitats (e.g., Decker et al. 2014 and Leinwand, I., N. B. Carr, and D. J. A. Wood 2016).

Measure 2a: What is the estimated amount of habitat degradation rangewide and the estimated change in the amount?
Within GRSG habitats, divide the combined estimated area of the active/direct footprint by the total area of GRSG habitat at spatial scales relevant to BLM LUP decisions and management, for example, at HAF fine-scale extents (percent disturbance in GRSG habitats).

Measure 2b: What is the estimated density of energy development activities and the change in the estimated density?
Within GRSG habitats, divide the total count of energy and mining locations (identified in **Table 3-4**) by the total area of GRSG habitat at spatial scales relevant to BLM LUP decisions and management, for example, at HAF fine-scale extents. The resulting density will be reported in units of "count per square mile".

Measure 2c: Were any disturbance or density caps above project scale exceeded?
Leveraging the outcomes of analyses performed to answer 2a and 2b, summaries of any disturbance or density caps, as articulated in each LUP, will be created.

Measure 2d: What is the amount of reclaimed energy-related degradation on BLM lands and the change in the amount?
Currently no single data repository exists which captures BLM's reclamation accomplishments in a spatial manner. As data becomes available depicting reclamation activities in sage-grouse habitats, they will be summarized.

Measure 3: GRSG Habitat Suitability

Measure 3.a. What is the status of GRSG habitat assessments at the mid-, fine- and site-scales across the range?
BLM will provide a rangewide summary of the total number of GRSG habitat assessments at the mid-, and fine-scales that are either completed or underway.

Measure 3.b. What is the suitability of GRSG habitats at mid- and fine- spatial scales?
BLM will summarize the results of the completed mid- and fine-scale assessments across the range of GRSG. Site-scale summaries are addressed in the LUP section of the BLM Revised GRSG Monitoring Framework.

Measure 4: Achievement of LHS in GRSG Habitat

Measure 4.a. How many acres were evaluated for achievement of the SSS/WL LHS in GRSG habitat across the range?
BLM will evaluate LHS on BLM-managed lands that contain GRSG habitat. Reporting will include the number of acres evaluated in the reporting period, evaluated prior to the reporting period, and not evaluated.

Measure 4.b. For areas that have been evaluated in GRSG habitat, what is the status of land health and what are the causes of non-achievement (as applicable)?
BLM will summarize the results of land health assessments (or functional equivalent) conducted within the reporting period as follows: achieving, making progress towards achieving, or not achieving LHS. Further, BLM will summarize the causes for not achieving land health when a causal factor analysis has been completed. As available, management responses will also be summarized.

Measure 5: BLM On-The-Ground Conservation and Restoration Efforts for GRSG

Measure 5.a. How many acres/miles were conserved or restored by treatment or action type in GRSG habitat?
BLM implements a variety of efforts to conserve and restore GRSG habitat. These efforts range from conifer removal and habitat restoration to riparian exclosures and fence modifications. BLM will use several existing databases to summarize the number of actions and number of acres/miles of conservation efforts by type.

Measure 6: GRSG Population Trend Rangewide

Measure 6.a. What is the rangewide average annual population trend?
The BLM will report rangewide population trends for GRSG. For rangewide populations trends, the BLM will report results from the most current version of the *Range-wide Population Trend Analysis for Greater Sage-*

Grouse (Centrocercus urophasianus) conducted by the USGS (e.g., Coates et al. 2022). This analysis estimates annual rangewide populations trends using these scales:

- Range-wide average annual trend
- Range-wide cumulative trend across three time periods:
  - Short (two oscillations, ~19 years)
  - Medium (four oscillations, ~35 years)
  - Long (six oscillations, ~55 years)

3.3 SECTION II: LUP IMPLEMENTATION MONITORING

3.3.1 Introduction

One key goal of monitoring BLM LUP implementation is to produce data and information to inform the GRSG portion of BLM LUP evaluations (as required by 43 CFR 1610.4-9 and the BLM H-1601-1 Land Use Planning Handbook). This section of the GRSG Revised Monitoring Framework describes the monitoring methodology for BLM to implement three types of monitoring and reporting across GRSG planning areas in 10 western states (California, Colorado, Idaho, Montana, North Dakota, Nevada, Oregon, South Dakota, Utah, and Wyoming):

- LUP implementation monitoring focuses on the primary cross-cutting GRSG conservation commitments (LUP objectives, decisions, and desired conditions) contained in the BLM 2025 GRSG LUP Amendments.
- Planning area GRSG habitat monitoring focuses on assessing suitability of habitat at the mid-, fine- and site scales. Planning area habitat monitoring also focuses on GRSG habitat availability to determine the status of BLM adaptive management habitat thresholds.

Planning area population monitoring focuses on GRSG population trends (tracked in partnership with state wildlife agencies and similar entities) to determine the status of BLM adaptive management population thresholds.

This Revised GRSG Monitoring Framework builds on the BLM's experience of annual monitoring and reporting on the first 5 years of GRSG BLM LUP implementation (2016 to 2020) published in the 5-year monitoring report (BLM Rangewide Monitoring Report, Herren et al. 2021). The structure for this section of the framework carries forward the monitoring questions from the Greater Sage-Grouse Monitoring Framework (Interagency Disturbance and Monitoring Subteam, May 2014) that have been modified to reflect the data, methods and information that has become available since 2015. Two additional monitoring questions have been added. The six monitoring questions are summarized in **Table 3-5**.

Table 3-5. The Six LUP Monitoring Measures, Associated Sub-Measures, Monitoring Questions and Data Sources for BLM Monitoring of GRSG Habitat Conditions and Population Trends

Measures	Monitoring Questions	Data
Measure 1: Status of GRSG habitat suitability within the planning area relative to the LUP objectives		
Measure 1a: Site-scale habitat suitability	What are the seasonal habitat suitability ratings as assessed by the HAF (Stiver et al. 2015, BLM TR 6710-1, as revised) and the combination of site-scale indicators?	State Office and National tracking of completed habitat assessments.

Measures	Monitoring Questions	Data
Measure 1b: Mid- and fine-scale habitat suitability	What are the mid- and fine-scale suitability ratings for GRSG habitats that overlap with the planning area as assessed by the mid- and fine-scale indicators?	State Office and National tracking of completed habitat assessments.
Measure 1c: Status of habitat assessments	What is the status of habitat assessments completed within the planning area?	State Office and National tracking of completed habitat assessments.
Measure 2: SSS/WL standard being achieved, or making progress towards being achieved, in allotments that contain GRSG habitats where evaluations have been completed since the 2024 Record of Decision within the planning area		
Measure 2a: Achieving, making progress towards achieving, or not achieving the SSS/WL standard	What is the number of allotments evaluated in the planning area and how many are achieving, making progress towards achieving, or not achieving the SSS/WL standard?	State Office and National tracking of completed land health evaluations.
Measure 2b: If grazing allotments include areas that are not achieving the standard and current grazing was identified as a significant causal factor	How many livestock grazing authorizations or allotments had management adjusted and what type of action was taken?	State Office tracking of grazing authorizations.
Measure 2c: If grazing allotments include areas that are not achieving the standard and current grazing was identified as a significant causal factor	How many permits/leases include an adaptive management strategy that incorporates specific thresholds and defined responses?	State Office tracking of grazing authorizations.
Measure 3: BLM LUP disturbance and density measures (e.g., surface disturbance caps)		
Measure 3a: Disturbance Caps	Were the disturbance caps for BLM authorizations exceeded at any scale in GRSG HMAs in the planning area? If so, which projects that exceeded the disturbance cap were authorized and why?	State office tracking of authorizations requiring a disturbance cap. Surface Disturbance and Reclamation Tracking Tool (SDARTT) or State managed disturbance databases.
Measure 3b: Density Caps	If applicable, were the density caps for BLM authorizations exceeded at any scale in GRSG HMAs in the planning area? If so, which projects that exceeded the density cap were authorized and why?	State office tracking of authorizations requiring a disturbance cap. SDARTT or State managed disturbance databases.
Measure 4: BLM LUP Adaptive Management habitat or population thresholds		
Measure 4a: Count of tripped thresholds	How many soft or hard BLM LUP adaptive management habitat or population thresholds were tripped in the planning area annually?	State office tracking of adaptive management thresholds.
Measure 4b: Count of untripped/reversed thresholds	How many thresholds were reversed ("untripped") annually in the planning area?	State office tracking of adaptive management thresholds.
Measure 4c: Responses to tripped thresholds taken by BLM	In areas where thresholds were tripped or untripped, what responses as described in the BLM LUP were taken initially? Were the response implementation actions modified after a causal factor analysis, if applicable?	State office tracking of responses to adaptive management thresholds being tripped or untripped.

Measures	Monitoring Questions	Data
Measure 4d: Status of causal factor analyses	What is the status of causal factor analyses? For completed causal factor analyses, what factors were identified as possible causal factors?	State office tracking of causal factor analysis in response to adaptive management thresholds being tripped.
Measure 5: Compensatory Mitigation		
Measure 5a: Use of compensatory mitigation	How many projects included compensatory mitigation annually? Which projects included compensatory mitigation?	State office tracking of compensatory mitigation.
Measure 6: Use of Waivers, Exceptions, or Modifications (WEMs)		
Measure 6a: Projects where WEMs are granted	Of the stipulations in the LUP developed for GRSG, which projects had a WEM granted? Of these projects, which type of stipulation and in which type of GRSG HMA were the WEMs granted?	State office tracking of WEMs associated with authorizations.

3.3.2 Methods

The following methods, datasets, and reporting units apply to implementation, habitat, and population monitoring across all BLM GRSG planning areas including variations that occur in some BLM GRSG planning areas due to partnerships with the states. Additional monitoring of GRSG conservation commitments may be implemented in BLM planning areas. The following descriptions of monitoring and reporting will be implemented to inform the six measures:

Measure 1: Status of GRSG habitat suitability within the planning area relative to the LUP objectives

Summaries of habitat suitability ratings, as assessed by the HAF (Stiver et al. 2015, BLM TR 6710-1, as revised), will be aggregated from National and State Office tracking mechanisms.

Measure 1a: What are the seasonal habitat suitability ratings as assessed by the HAF (Stiver et al. 2015, BLM TR 6710-1, as revised) and the combination of site-scale indicators?

The BLM will summarize the results of site-scale assessment reports that overlap with the planning area, reported in 5-year intervals. Example reporting could include proportional area estimates (e.g., 50 percent suitable, 20 percent marginal, 30 percent unsuitable) or plot counting (e.g., 50 plots suitable, 20 plots marginal, 30 plots unsuitable).

Measure 1b: What are the mid- and fine-scale suitability ratings for GRSG habitats that overlap with the planning area as assessed by the mid- and fine-scale indicators?

The BLM will summarize the results of mid- and fine-scale assessment reports that overlap the planning area.

Measure 1c: What is the status of habitat assessments completed within the planning area?

The BLM will summarize and report on the number of completed habitat assessments that overlap the planning area using the BLM National Operations Center tracking system.

Measure 2: SSS/WL standard being achieved, or making progress towards being achieved, in allotments that contain GRSG habitats where evaluations have been completed since the 2024 Record of Decision within the planning area.

Summaries of allotments achieving, making progress towards achieving, or not achieving the SSS/WL standard.

Measure 2a: What is the number of allotments evaluated in the planning area and how many are achieving, making progress towards achieving, or not achieving the SSS/WL standard?
The BLM will use the BLM's LHS database and State Office tracking mechanisms to monitor and report the achievement of the SSS/WL standard in completed land health evaluations in GRSG habitat within the planning area and whether livestock grazing was identified as a significant causal factor in non-achievement.

Measure 2b: For grazing allotments with areas not achieving SSS/WL standard and livestock grazing is a causal factor, how many livestock grazing authorizations or allotments had management adjusted and what type of action was taken?
The BLM will use available BLM databases and State Office tracking mechanisms to report on the number of livestock grazing authorizations or allotments that had management actions taken in each planning area. BLM Field, District, and State Offices will coordinate to report on the type of actions taken (e.g., changes to season of use or amount of use, changes to infrastructure).

Measure 2c: For grazing allotments with areas not achieving SSS/WL standard and livestock grazing is a causal factor, how many permits/leases include an adaptive management strategy that incorporates specific thresholds and defined responses??
BLM Field, District, and State Offices will coordinate to report on the number of permits/leases that were modified to incorporate an adaptive management strategy that includes specific thresholds and defined responses in each planning area.

Measure 3: BLM LUP disturbance and density measures (e.g. surface disturbance and density caps)
The BLM field offices will use disturbance tracking databases (e.g., SDARTT) or other methods to track the amount of disturbance authorized by the BLM. The BLM State Offices/BLM National Operations Center will compile the results and summaries of habitat disturbance calculations conducted at the project and larger scale management areas within the planning area to include in monitoring reports.

Measure 3a: Were the disturbance caps for BLM authorizations exceeded at any scale in GRSG HMAs in the planning area? If so, which projects that exceeded the disturbance cap were authorized and why?
For projects that exceeded the disturbance cap, the BLM State Offices will identify those projects, and the reason(s) why the disturbance cap was exceeded using available databases and project records (e.g., National Environmental Policy Act of 1969 [NEPA] documents).

Measure 3b: If applicable, were the density caps for BLM authorizations exceeded at any scale in GRSG HMAs in the planning area? If so, which projects that exceeded the density cap were authorized and why?
If the LUP includes a cap on the density of anthropogenic disturbances, the BLM SOs will identify the projects that were authorized which exceeded the density cap and provide the reason for the exceedance using available databases and project records (e.g., NEPA documents).

Measure 4: BLM LUP Adaptive Management habitat or population thresholds
BLM State Offices will complete adaptive management threshold and causal factor (as required) analyses annually as described in each LUP.

Measure 4a: How many soft or hard BLM LUP adaptive management habitat or population thresholds were tripped in the planning area annually?
BLM State Offices, in coordination with BLM Field and District Offices, will report on annual calculations and counts of LUP adaptive management thresholds tripped.

Measure 4b: How many thresholds were reversed ("untripped") annually in the planning area?
BLM State Offices, in coordination with BLM Field and District Offices, will report on annual calculations and counts of LUP adaptive management thresholds untripped.

Measure 4c: In areas where thresholds were tripped or untripped, what responses as described in the BLM LUP were taken initially? Were the response implementation actions modified after a causal factor analysis, if applicable?
The BLM State Office, in coordination with BLM Field and District Offices, will summarize and report on the action(s) taken, as described in the LUP, in response to each threshold being tripped or reversed.

Measure 4c: What is the status of GRSG causal factor analyses? For completed causal factor analyses, what factors were identified as possible causal factors?
The BLM State Office, in coordination with BLM Field and District Offices, will summarize the number and status of causal factor analyses required in response to adaptive management thresholds being tripped or untripped as required in the LUP. For completed causal factor analyses, the BLM State Office, in coordination with BLM Field and District Offices, will also report on the identified causal factors (if known) and the responses or implementation actions taken to address the causal factors if different than those taken in response to a threshold being tripped or untripped (as applicable).

Measure 5: Compensatory Mitigation
BLM State Offices will track the implementation of the use of compensatory mitigation for individual authorizations.

Measure 5a: How many projects included compensatory mitigation annually? Which projects included compensatory mitigation?
The BLM State Office, in coordination with BLM Field and District Offices, will report on the number of authorized projects that included compensatory mitigation and report on which projects included compensatory mitigation.

Measure 6: Use of WEMs
BLM State Offices will track the use of WEMs in GRSG habitat.

Measure 6a: Of the stipulations in the LUP developed for GRSG, which projects had a WEM granted? Of these projects, which type of stipulation and in which type of GRSG HMA were the WEMs granted?
The BLM State Office, in coordination with BLM Field and District Offices, will report on which projects had a WEM granted for the stipulations in the LUP developed for GRSG. Of these projects, the type of stipulation and in which type of GRSG HMA the WEMs were granted will also be reported.

Table 3-6. Example Reporting Structure for WEMs

WEMs granted by BLM by stipulation type and GRSG Habitat Management Type			
Project NEPA ID	**Stipulation Type (No Surface Occupancy, Controlled Surface Use, Timing Limitation)**	**WEM Type (Waiver, Exception, Modification)**	**Habitat Type (PHMA, General HMA)**
Example: NEPA number	Timing Limitation	Exception	PHMA

3.4 SECTION III: EVALUATION OF EFFECTIVENESS

The information collected at the rangewide scale will be used by the BLM to provide a cohesive look at conditions across administrative boundaries. Measures which are analyzed across all lands (vegetation availability and condition, disturbance estimates, etc.) will be also analyzed on BLM managed lands so that BLM management influence on each can be inferred. Similarly, trend analyses and monitoring of changes through time for several measures will facilitate an understanding of BLM's influence on sage-grouse habitats. Conceptually, if rangewide monitoring identifies increasing sagebrush availability and improving vegetation conditions, decreasing disturbance, and a stable or increasing, there is evidence that the BLM's goal to conserve and maintain habitats for healthy populations and connectivity of populations have been met. Conversely, where information indicates that sagebrush is decreasing and vegetation conditions are degrading, disturbance in sage-grouse areas is increasing, and/or populations are declining relative to the baseline, there is evidence that the BLM's goal is not being achieved. Given the variety of measures this Framework outlines, the inherent challenges of establishing cause-and-effect relationships in mixed ownership landscapes and the complexity of population dynamics, such straight forward interpretations are expected to be minimal. To the best of the BLM's ability, factors driving observed changes will be identified and discussed when each measure is examined and synthesized with BLM's role in observed change identified (i.e. were changes due to drought or directly related to BLM's management).

The information collected under the six LUP questions of this monitoring framework will be leveraged in the broader LUP effectiveness evaluation required in 43 CFR 1610.4-9 and as described in the BLM Land Use Planning Handbook (BLM H-1601-1, 2005). BLM State Offices will include sage-grouse specific sections in these evaluations of effectiveness for areas where sage-grouse management goals and objectives are applicable. The complexity of these evaluations may be based on the amount of sage-grouse habitats within the area, known issues within sage-grouse habitats or other factors deemed important by the State Office. The sage-grouse specific components of these evaluations will include, at a minimum, the information collected to inform the six LUP measures. Additional local information that supports or clarifies the conclusions or effectiveness summaries shall also be considered. Information from the range wide effectiveness section of this monitoring framework will be used to inform the effectiveness evaluation at the LUP level as applicable. This information will also be used to place the field office's effectiveness evaluation conclusions in context with how the implementation of sage-grouse management decisions are supporting the overall BLM's goals to conserve and manage GRSG habitats to support persistent, healthy populations, consistent with BLM's sensitive species policy and in cooperation with other conservation partners and maintain existing connectivity between sage-grouse populations. The interdisciplinary team will develop and recommend a suite of actions, as appropriate, the BLM can take to address any conclusions made within the sage-grouse portion of the larger effectiveness evaluation. These recommendations may vary from LUP implementation changes to LUP revisions as described in the Land Use Planning Handbook, section VI.

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APPENDIX A. LANDFIRE ECOLOGICAL SYSTEMS CAPABLE OF SUPPORTING SAGEBRUSH

Table A1. Ecological systems in BpS and EVT capable of supporting sagebrush vegetation and capable of providing suitable seasonal habitat for GRSG.

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability of Producing	Sagebrush (SB) or Sagebrush Associated (SBA)
Colorado Plateau Mixed Low Sagebrush Shrubland	*Artemisia arbuscula* ssp. *longiloba* *Artemisia bigelovii* *Artemisia nova* *Artemisia frigida* *Artemisia tridentata* ssp. *wyomingensis*	SB
Columbia Plateau Low Sagebrush Steppe	*Artemisia arbuscula* *Artemisia arbuscula* ssp. *longiloba* *Artemisia nova*	SB
Columbia Plateau Scabland Shrubland	*Artemisia rigida*	SBA
Columbia Plateau Steppe and Grassland	*Artemisia* spp.	SBA
Great Basin Xeric Mixed Sagebrush Shrubland	*Artemisia arbuscula* ssp. *longicaulis* *Artemisia arbuscula* ssp. *longiloba* *Artemisia nova* *Artemisia tridentata* ssp. *wyomingensis*	SB
Inter-Mountain Basins Big Sagebrush Shrubland	*Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *xericensis* *Artemisia tridentata* ssp. *vaseyana* *Artemisia tridentata* ssp. *wyomingensis*	SB
Inter-Mountain Basins Big Sagebrush Steppe	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *xericensis* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tripartita* ssp. *tripartita* *Artemisia frigida*	SB
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Woodland	*Artemisia tridentata* ssp. *vaseyana* *Artemisia arbuscula* *Artemisia tridentata*	SBA
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Shrubland	*Artemisia tridentata* ssp. *vaseyana* *Artemisia arbuscula* *Artemisia tridentata*	SBA
Inter-Mountain Basins Mixed Salt Desert Scrub	*Artemisia tridentata* ssp. *wyomingensis* *Artemisia spinescens*	SBA
Inter-Mountain Basins Montane Sagebrush Steppe	*Artemisia tridentata* ssp. *vaseyana* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia nova* *Artemisia arbuscula* *Artemisia tridentata* ssp. *spiciformis*	SB
Inter-Mountain Basins Semi-Desert Shrub-Steppe	*Artemisia tridentata* *Artemisia bigelovii* *Artemisia tridentata* ssp. *wyomingensis*	SBA
Northwestern Great Plains Mixed Grass Prairie	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *vaseyana* *Artemisia frigida*	SBA

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability of Producing	Sagebrush (SB) or Sagebrush Associated (SBA)
Northwestern Great Plains Shrubland	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *wyomingensis*	SBA
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	*Artemisia tridentata*	SBA
Rocky Mountain Lower Montane-Foothill Shrubland	*Artemisia nova* *Artemisia tridentata* *Artemisia frigida*	SBA
Western Great Plains Sand Prairie	*Artemisia cana* ssp. *cana*	SBA
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	*Artemisia arbuscula* ssp. *longiloba* *Artemisia nova* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tripartita* ssp. *rupicola*	SB
Artemisia tridentata ssp. *vaseyana* Shrubland Alliance (EVT only)	*Artemisia tridentata* ssp. *vaseyana*	SB
Quercus gambelii Shrubland Alliance (EVT only)	*Artemisia tridentata*	SB

APPENDIX B. DATA ACCURACY ASSESSMENTS FOR LANDFIRE AND RCMAP

LANDFIRE Agreement Assessment

In the monitoring framework we will use the most recent version of LANDFIRE EVT data (EVT 2.2.0) which currently is based on the 2016 EVT Remap with updates due to disturbances. The 2016 EVT Remap data were reviewed using agreement assessments that compared individual sample field plots with EVT classes for pixels at plot locations using the Auto-Key EVT assignment. The plot data used for the agreement assessment was not used in the 2016 remap process by LANDFIRE so this was formulated as the most independent and robust test possible for the data. More details of this process are here: https://landfire.gov/remapevt_assessment.php.

Agreement assessments of all classes of data in northwest (NW) and southwest (SW) GeoAreas provide overall results of 47 percent and 42 percent respectively (**Table B1**). However, for GRSG purposes we also aggregated all classes into sagebrush (SB), sagebrush associated (SBA), or nonhabitat using LANDFIRE's process of collapsing categories. This aggregation caused the agreement assessments to increase substantially for both the NW and SW GeoAreas (**Table B1**).

Table B1. Agreement assessments of sagebrush (SB), sagebrush associated (SBA), nonhabitat, and overall classes in LANDFIRE EVT data showing the increased accuracy estimated when classes are grouped.

GeoAreas	SB	SBA	SB and SBA	Nonhabitat	Overall
NW	85%	49%	86%	92%	47%
SW	75%	45%	71%	92%	42%

RCMAP Accuracy Assessment

Rigge et al. (2022) accuracy metrics, using 1860 independent field measurements, are shown in the table under Published. The BLM-conducted accuracy assessment used more than 3,000 data points from the AIM

2.0 database in 2021 and compared them to RCMAP 2020 predictions that used training data to 2019 (Savage and Slyder 2022).

Table B2. Results of RCMAP published and BLM-conducted accuracy assessments (Savage and Slyder 2022).

Indicator	Published			BLM-conducted		
	R2[1]	RMSE[2]	MAE[3]	R2[1]	RMSE[2]	MAE[3]
Annual Herbaceous	0.58	9.8	-	0.13	14.21	7.59
Sagebrush	0.4	7.5	-	0.33	8.41	5.51
Trees	-	-	-	-	-	-

[1] R2 is the coefficient of determination
[2] RMSE is the root mean squared error
[3] MAE is the mean absolute error

APPENDIX C. LITERATURE SUMMARY OF CONIFER EFFECTS ON SAGE-GROUSE

Table C1. Summary of the literature on the effects of conifer cover on GRSG.

Name	% Conifer Cover	Distance/ Area	State	Leks	Nesting	Brood Rearing	No Season Given
Baruch-Mordo et al. 2013	>4%	-	OR	No active leks	-	-	-
Baxter et al. 2017	-	-	UT	-	-	Selected areas far from trees	-
Beers et al. 2022	<2%, <11%, <4%	400m, 800m	NV UT	Summer and breeding Winter Year-round, selected for sagebrush patch contiguity			
Brussee et al. 2022	0%	-	NV	-	-	Preferred no pinyon-juniper to 1-10% conifer	-
Casazza et al. 2011	<5% (threshold was selected by the scientists based on Miller et al 2005)	7.9 ha (20 acre, 160m radius); 226.8 ha (560 acre, 850m radius)	CA	-	-	GRSG avoided pinyon-juniper at large scale, but models were unsuccessful at explaining this	-
Coates et al. 2017	< 2%	-	CA	-	-	-	GRSG tolerate <2% but less may be better for survival
Cook et al. 2017	4% >3 %	1000m 800m	UT	Lower suitability	Lower suitability	-	-

Name	% Conifer Cover	Distance/ Area	State	Leks	Nesting	Brood Rearing	No Season Given
Doherty et al. 2010	-	100m	MT, WY	-	Strong avoidance of conifer within	-	-
Doherty et al. 2016	-	-	MZs	Strong neg relationship between GRSG occurrence and tree canopy cover			
Doherty et al. 2021	>3%	560m	OR	Lower suitability	-	-	-
Fedy et al. 2014	-	-	WY	GRSG avoided forested areas			
Gibson et al. 2015	>30%, 10-30%	1000m	NV	-	Avoided 10-30% areas were selected	-	-
Nisbet et al. 1983	0%	-	NV UT	Lek model preference for sites with no conifer	-	-	-
Olsen et al. 2021	-	-	OR	GRSG population increased where conifer was removed, suggest limit to <10% cover			
Picardi et al. 2020	-	-	UT	Modeled relationship found that areas with no conifer cover would be selected and areas with high conifer cover would be avoided			
Roth et al. 2022	-	-	NV	-	GRSG selected pinyon-juniper class (1-10%) was below average	-	-
Sandford et al. 2017	>4%	-	UT	-	Less suitable for nesting habitat	-	-
Severson et al. 2017	>3%, >4%	800m	OR	-	Lower suitability, Marginal/unsuitable	-	-
Westover et al. 2016	-	-	UT	GRSG avoided areas with high percentage of trees GRSG broods found further from trees			

Appendix 4

Greater Sage-Grouse Habitat Indicators and Benchmarks

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Appendix 4. Greater Sage-Grouse Habitat Indicators and Benchmarks

4.1 Incorporating the Best Available Science into the Habitat Assessment Framework Process

The Habitat Assessment Framework (HAF/ BLM TR 6710-1, as revised) provides a standardized, scientifically based methodology to assess sage-grouse habitat suitability at multiple scales (broad, mid, fine, and site-scales, Levels 1, 2, 3 and 4 respectively). Habitat suitability occurs along a gradient ranging from unsuitable to suitable and is rarely uniform within and across the scales. Using multi-scale evaluations is important for assessing GRSG habitat by considering the entire suite of conditions that contribute to high quality habitat, the success of past conservation actions, and prioritizing future land uses and conservation actions. Descriptions of the scales of habitat selection (broad-, mid-, fine-, and site-) and the associated indicators for habitat assessment at each scale are available in the HAF (BLM TR 6710-1, as revised).

4.2 Habitat Indicators and Benchmarks for Site-Scale HAF

The vegetation characteristics associated with site-scale habitat suitability vary across the range of GRSG. For example, characteristics (both indicators and benchmarks) in the grasslands of Montana are different than the characteristics in the sagebrush shrublands in the southern Great Basin of Utah and Nevada. The HAF technical reference includes general site-scale forms for the indicators and benchmark values for suitable site scale habitat ratings. The indicators and benchmark values used in these forms at the site scale should be updated to incorporate the best available research related to habitat suitability applicable to the regional and local variability.

The Habitat Indicators Table (**Table 4-1**) provide a list of indicators and benchmarks, derived from local and regional research on GRSG habitat selection, that collectively are used to inform habitat suitability. These indicators and benchmarks have been updated from those n the HAF based on more recent and localized research. BLM Nevada and BLM California will use the indicators and benchmarks in **the table below** to assess each monitoring location within seasonal habitats for site-scale suitability, with data collected during the appropriate corresponding seasonal use period, as applicable to address phenological changes. Not all areas within a given habitat management area will be capable of meeting the identified seasonal habitat values in the Habitat Indicators Table due to inherent variation in vegetation communities and ecological potential. Habitat Indicators and Benchmarks are habitat conditions that are based on habitat selection that may not be achievable or applicable in all areas. Site-specific benchmarks must be based on the site's ecological potential informed by ecological site descriptions and associated state-and-transition models and the site's current ecological state. Future scientific publications are expected to include additional details on breeding phenology, nesting and brood success, habitat use, and insect abundance. For example, publications are anticipated within a year or more resulting from the 10-year Grouse-Grazing Study which published a Final Report in June 2025 (Conway et al. 2025). As a result, updates to indicators and benchmark values may occur, as appropriate, on seasonal dates for lekking, nesting, and late brood-rearing, and habitat characteristics for sagebrush cover, perennial grass and perennial forb height and cover.

When completing site-scale assessments, it is inappropriate to use a single indicator from **Table 4-1** or the HAF habitat suitability form to determine overall habitat suitability of the plot (i.e., suitable, marginal, or unsuitable) unless sagebrush is absent or limiting. Instead, BLM staff must consider all the indicators using multiple lines of evidence, as described in the HAF and in the training materials, to determine the plot's

overall habitat suitability. The measured habitat indicator values will vary seasonally, driven largely by use and environmental conditions (e.g., ecological site potential of the monitoring plot), including factors such as annual rainfall, drought, annual production, and natural disturbances, such as high intensity wildfires and flooding. In addition, a site may not meet the suitable rating if many indicators are impacted by annual climate variability (e.g., drought conditions), which is independent of management. Thus, it is critical to document environmental factors when completing the habitat suitability forms. This information is essential to inform land health assessments and evaluations. Factors to inform assessments and evaluations could also include grouping portions of the landscape based on ecological characteristics that influence their impact to and recovery from changes on the landscape (e.g., fire, drought and other extreme weather events, insect outbreaks, soil disturbance, etc.). Use of such disturbance response groupings (considering disturbance in the ecological sense, not based on the RMP disturbance cap) may also be appropriate to scale ecological site descriptions for larger planning areas and provide context to HAF assessments (Stringham et al. 2016).

Indicators are assessed following the methods described in the Sage-grouse Habitat Assessment Framework. BLM will leverage the terrestrial Assessment, Inventory, & Monitoring (AIM) methods (Herrick et al. 2021), additional monitoring approaches for wetland & riparian habitats, credible partner data, and supplemental long-term monitoring data and guidelines developed by the BLM to collect data on site-scale habitat condition (**Table 4-1**). Not all monitoring locations within a given seasonal habitat area will be able to achieve all suitable benchmark values in the Habitat Indicators Table due to the inherent variation in vegetation communities and ecological site potential. The intent is not to meet all habitat requirements at all monitoring locations, but to provide seasonal habitat requirements sufficiently across the landscape. Marginal or unsuitable ratings may still provide, or have the capacity to provide, one or more of the habitat components.

As additional research becomes available, new data could continue to refine or clarify GRSG selection for vegetation structure and composition in seasonal habitats for certain populations, e.g., multi-year studies from NV and CA (Coates et al. 2017a, Brussee et al. 2023) and Idaho (Conway et al. 2025). Because of this, the Habitat Indicators Table was updated for this effort and will be periodically reviewed to incorporate the best available science in coordination with applicable federal, state, local, and tribal agencies. The values provided in **Table 4-1**, as updated, will be used for HAF assessments. The addition or adjustment to indicators or benchmarks in the Habitat Indicators Table must include the reference or basis for which the changes are made. Edits should only be made if warranted by scientific evidence, in coordination with the applicable state agency.

Table 4-1. Nevada/California GRSG Habitat Indicators Table

Attribute	Indicators	Benchmarks	Reference
GENERAL/LANDSCAPE-LEVEL [1]			
All life stages	Rangeland health assessments	Meeting all standards [2]	–
Cover (nesting)	Seasonal habitat needed	>65% of the landscape in sagebrush cover	Aldridge and Boyce 2007
	Annual grasses	<%5	Blomberg et al. 2012
Security (nesting)	Conifer encroachment	<3% phase I (>0 to <25% cover) No phase II (25 to 50% cover) No phase III (>50% cover)	Casazza et al. 2011 Coates et al. 2016
Cover and food (winter)	Conifer encroachment	<5% phase I (>0 to <25% cover) No phase II (25 to 50% cover) No phase III (>50%)	Coates et al. 2016
	Sagebrush extent	>85% sagebrush land cover	Doherty et al. 2008

Attribute	Indicators	Benchmarks	Reference
LEK (Seasonal Use Period: March 1 to May 15) [1]			
Cover	Availability of sagebrush cover	Adjacent sagebrush provides escape cover	Blomberg et al. 2012 Connelly et al. 2000 Stiver et al. 2015
Security [3]	Pinyon or juniper cover	<2% landscape cover within .6 mile of leks	Connelly et al. 2000 (modified) Stiver et al. 2015 Baruch-Mordo et al. 2013 Coates et al. 2017b
	Proximity of Linear Features	>3.1 miles	Manier et al. 2014
	Proximity of Surface Disturbance	>3.1 miles	Manier et al. 2014
	Proximity of Tall Structures	>2 miles	Coates et al. 2013 Manier et al. 2014
	Proximity of Low Structures	>1.2 miles	Manier et al. 2014
NESTING (Seasonal Use Period: April 1 to June 30) [1]			
Cover [6]	Sagebrush cover	Arid [8]: ≥20% Mesic [8]: >20%	Kolada et al. 2009a, 2009b Coates et al. 2017a
	Residual and live perennial grass cover (such as native bunchgrasses)	Arid [8]: ≥7% if shrub cover is >20% [5] Mesic [8]: ≥13% if shrub cover is >20% [5]	Conway et al. 2025 Smith et al. 2020 Smith et al. 2018 Stiver et al. 2015 Coates et al. 2013; 2017a Coates and Delehanty 2010 Kolada et al. 2009a, 2009b Connelly et al. 2000
	Annual grass cover	Arid [8]: <3% Mesic [8]: <3%	Coates et al. 2017a
	Total shrub cover	Arid [8]: >28% Mesic [8]: >26%	Coates and Delehanty 2010 Kolada et al. 2009a Coates et al. 2017a
	Perennial grass height (includes residual grasses)	Suitable Nest Cover [11]	Conway et al. 2025 Brussee et al. 2023 Smith et al. 2020 Smith et al. 2018 Coates et al. 2017a Stiver et. al. 2015 Hagen et al. 2007 Connelly et al. 2000, 2003
Security [2]	Proximity of tall structures [4] (3 feet [1 meter] above shrub height)	Use Manier et al. 2014, Conservation Buffer Distance Estimates for GRSG-A Review; preference is 3 miles	Coates et al. 2013 Gibson et al. 2013 Manier et al. 2014
	Pinyon or juniper cover	<3% within 800 meters	Severson et al. 2017
	Invasive annual grass cover	<2% cover	BLM synthesis of research [9]
	Conifer	0 (Absence of conifer at site)	BLM synthesis of research [10]

Attribute	Indicators	Benchmarks	Reference
BROOD-REARING/SUMMER (Seasonal Use Period: May 15 to September 15; Early: May 15 to June 15; Late: June 15 to September 15) [1]			
UPLAND HABITATS			
Cover [6]	Sagebrush cover	Arid [8]: ≥20% Mesic [8]: >15%	Connelly et al. 2000 Coates et al. 2017a
	Perennial grass and forb cover	Arid [8]: >19% Mesic [8]: >25%	Connelly et al. 2000 Hagen et al. 2007 Coates et al. 2017a
	Deep rooted perennial bunchgrass (within 522 feet [200 meters] of riparian areas and wet meadows)	Arid [8]: 12 cm [7] Mesic [8]: 14 cm [7]	Hagen et al. 2007 Casazza et al. 2011 Coates et al. 2017a
Cover and food [6]	Perennial forb cover	Arid [8]: >5% Mesic [8]: >9%	Casazza et al. 2011 Lockyer et al. 2015 Coates et al. 2017a
	Invasive annual grass cover	<2% cover	BLM synthesis of research [9]
	Conifer	0 (Absence of conifer)	BLM synthesis of research [10]
RIPARIAN/MEADOW HABITATS [1]			
Cover and food [6]	Riparian areas/meadows	PFC	Dickard et al. 2015 Gonzalez and Smith 2020 Prichard 1998 Prichard 1999 Stiver et al. 2015
Security [6]	Upland and riparian perennial forb availability and understory species richness	Preferred forbs are common with several species present and high species richness (all plants)	Stiver et al. 2015
	Riparian area/meadow interspersion with adjacent sagebrush	Has adjacent sagebrush cover within 200 meters	Casazza et al. 2011 Stiver et al. 2015
	Invasive annual grass cover	<2% cover	BLM synthesis of research [9]
	Conifer	0 (Absence of conifer)	BLM synthesis of research [10]
WINTER (Seasonal Use Period: November 1 to February 28)1			
Cover and Food	Sagebrush cover	≥10%	Connelly et al. 2000 Stiver et al. 2015
	Sagebrush height	> 25 cm above snow depth	Connelly et al. 2000 Stiver et al. 2015
	Conifer	0 (Absence of conifer)	BLM synthesis of research [10]

Notes:

[1] Any one single habitat indicator does not define whether the habitat objective is or is not met. Instead, the preponderance of evidence from all indicators within that seasonal habitat period must be considered when assessing GRSG habitat objectives.

[2] Upland standards are based on indicators for cover, including litter, live vegetation, and rock, appropriate to the ecological potential of the site in context of the site's current ecological state and using the associated state and transition model/disturbance response group.

[3] Applicable to Phase I and Phase II pinyon and/or juniper.

[4] Does not include fences.

[5] In addition, if upland rangeland health standards are being met.

[6] Ecological site potential to meet habitat objectives should be considered when determining if objectives are feasible for the site.

[7] In drought years, 4-inch perennial bunchgrass height with greater than 20 percent measurements exceeding 5 inches in dry years.

[8] Arid is defined as areas that received >35.0 cm of average annual precipitation. Mesic is defined as areas that received ≤35.0 cm of average annual precipitation.

[9] BLM synthesis of research on the impacts invasive annual grasses have on sage-grouse habitat suitability (**Attachment 4-1**)

[10] BLM synthesis of research on the impact conifer have on sage-grouse habitat suitability (**Attachment 4-2**)

[11] Perennial grass and forb height (including residual grasses) that would provide for adequate nesting cover will be based on the best available science; these may differ by ecological site potential and vegetation type, e.g. perennial grass, forb, and/or residual grass height (Coates et al. 2017a, Dahlgren et al. 2019, Brussee et al. 2023, Conway et al. 2025).

4.3 USING THE HABITAT INDICATORS TABLE

The Habitat Indicators Table is to be used as follows:

- To inform habitat suitability at one point in time, as defined by the processes described in the Habitat Assessment Framework and BLM HAF Implementation Guidelines.
- To inform measurable project objectives during implementation-level planning for BLM-permitted and BLM-initiated actions in HMAs, as applicable.
- To inform agency decision-makers regarding consideration of whether a project or proposal should be approved, denied, or modified based on how it would affect an area's existing habitat suitability status.

Additional guidance on the use of the Habitat Indicators Table and the associated products is available in the Habitat Assessment Framework (Stiver et al. 2015, BLM TR 6710-1, as revised) and BLM Sage-grouse HAF Implementation Guidelines.

When assessing seasonal habitat suitability, the BLM will summarize and report the number of monitoring locations, or amount of seasonal habitat in the analysis area, that are suitable, marginal, or unsuitable. Based on the monitoring locations rated as suitable, marginal, or unsuitable and the documentation of conditions across the entire analysis area such as ecological site potential (using appropriate ecological site descriptions, State and Transition Models, reference sheets, etc.), weather, and land ownership patterns, the BLM will determine if a given seasonal habitat is a limiting factor for sage-grouse. All rationale will be documented in a HAF summary report.

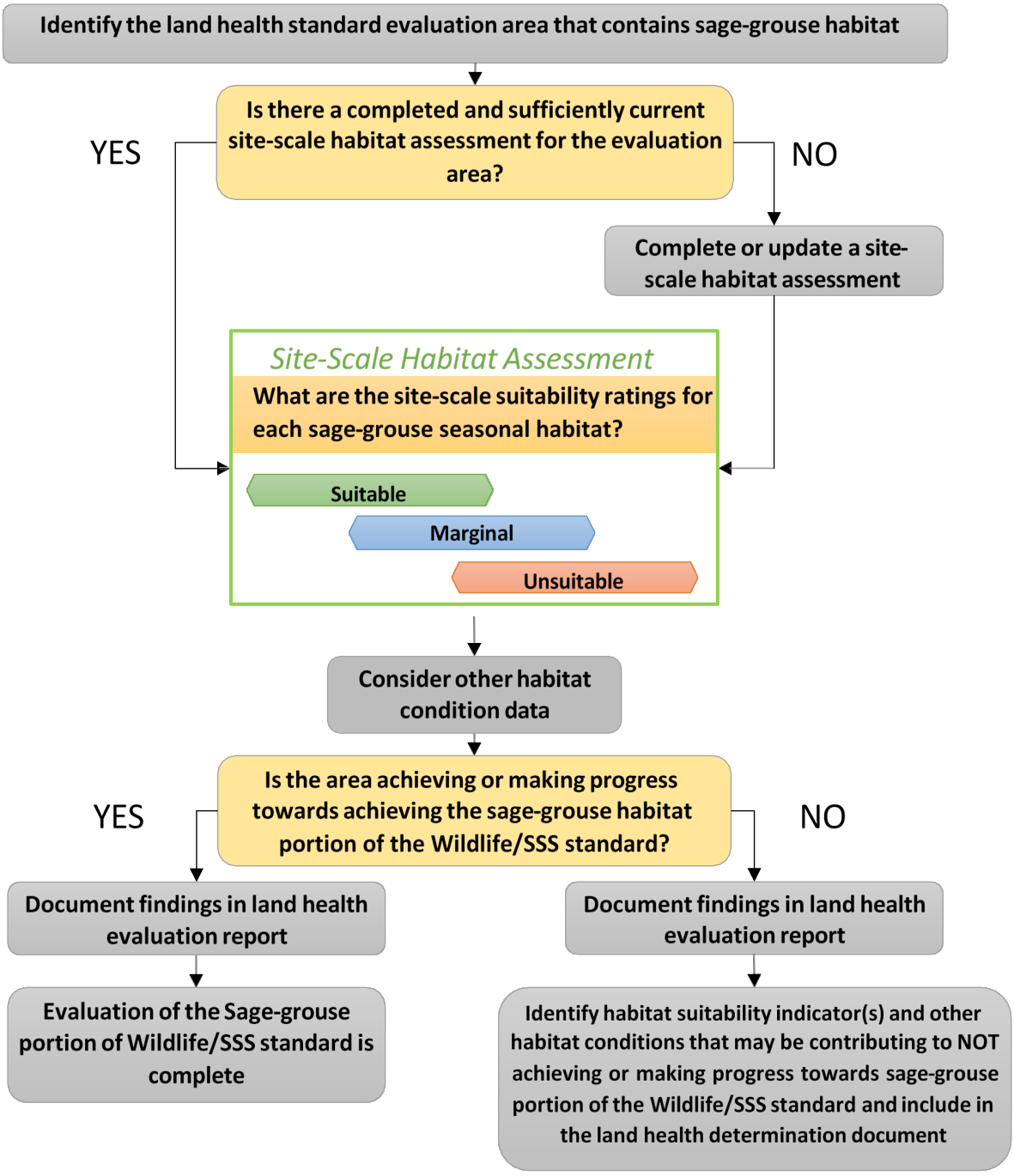
4.3.1 Relationship of the Habitat Indicators Table to other assessment and planning tools

The indicators and benchmarks in the Habitat Indicators Table are meant to inform the wildlife and/or sensitive species component of the Land Health Standards evaluation process (LHS, 43 CFR 4180.2; **Figure 4-1**). The Habitat Indicators are not land health standards and do not replace land health assessments. The indicators relating to vegetative cover are assessed using AIM methodology (Herrick et al. 2021). The HAF, GRSG Monitoring Framework (see **Appendix 3**), and land health assessments all incorporate AIM data to monitor existing conditions and track changes over time. The Land Use Plan (LUP) indicators use AIM methods to measure several of the GRSG habitat indicators.

4.4 INAPPROPRIATE USES OF THE HABITAT INDICATORS TABLE

- Using the indicator value(s) as default desired conditions to inform LUP effectiveness without considering the current state compared to ecological potential of the site and relevant local information where measurements were taken.
- Using a single measured indicator value such as grass height to determine sage-grouse habitat suitability.
- Using a single indicator as a criterion to modify grazing management or any other use.
- Adjusting use authorizations based on measured indicator values without adequate monitoring data.
- Adjusting use authorizations before determining whether the change will help move towards suitable habitat.

Figure 4-1. Flowchart on Incorporating the Results of Site-Scale Sage-Grouse Habitat Assessment* into Wildlife/SSS Standard in the Land Health Assessments and Evaluations**


Identify the land health standard evaluation area that contains sage-grouse habitat
Is there a completed and sufficiently current site-scale habitat assessment for the evaluation area?
YES
NO
Complete or update a site-scale habitat assessment
Site-Scale Habitat Assessment
What are the site-scale suitability ratings for each sage-grouse seasonal habitat?
Suitable
Marginal
Unsuitable
Consider other habitat condition data
Is the area achieving or making progress towards achieving the sage-grouse habitat portion of the Wildlife/SSS standard?
YES
NO
Document findings in land health evaluation report
Document findings in land health evaluation report
Evaluation of the Sage-grouse portion of Wildlife/SSS standard is complete
Identify habitat suitability indicator(s) and other habitat conditions that may be contributing to NOT achieving or making progress towards sage-grouse portion of the Wildlife/SSS standard and include in the land health determination document

Acronyms:

SSS – Special Status Species
* Following the Sage-Grouse Habitat Assessment Framework (Stiver et al. 2015)

**For the complete land health standards evaluation and causal factor determination workflow, refer to: Kachergis, E., N. Lepak, M. Karl, S. Miller, and Z. Davidson. 2020. Guide to Using AIM and LMF Data in Land Health Evaluations and Authorizations of Permitted Uses. Tech Note 453. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO.

Table 4-2. Relationships of LUP, HAF, LHS and MF to the GRSG Habitat Objectives

Land Health Standards (LHS) Evaluation	Land Use Plan (LUP)	GRSG Habitat Assessment Framework (HAF)	GRSG Monitoring Framework (MF)
Evaluates if the sage- grouse portion of the Special Status Species Land Health Standard is achieved or significant progress towards achievement is made. These evaluations utilize HAF results along with other data.	Sets GRSG habitat objective(s) and Identifies the GRSG habitat indicators (see **Table 4-1** above) and benchmarks from best available science for evaluating progress toward meeting the objective	Provides methods to assess GRSG habitats using the LUP indicators and benchmarks from this appendix (see **Table 4-1** above)	Provides framework for reporting progress toward achieving the objective(s) of the LUP

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Attachment 4-1. Justification for Invasive Annual Grass as a Habitat Suitability Indicator at the Sage-grouse Habitat Assessment Framework (HAF) Site-Scale

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Finalized on: October 12, 2023

BACKGROUND

Invasive annual grasses, such as cheatgrass, medusahead, and ventenata species, are a recognized threat to sagebrush ecosystems (Chambers et al. 2016, Remington et al. 2021, Rowland et al. 2019) causing reduced ecosystem function, displacement of native vegetation, increased fire risk and reduced rates of post-fire recovery (D'Antonio and Vitousek 1992, Bradely et al. 2018) all of which can lead to degradation and/or loss of sage-grouse habitat (Nelle et al. 2000, Wik et al. 2002, Coates et al. 2015, Coates et al. 2016, Lockyer et al. 2015, Steenvoorden et al 2019, Brussee et al. 2022, Poessel et al. 2022). The Bureau of Land Management (BLM) uses the Sage-grouse Habitat Assessment Framework (HAF; Stiver et al. 2015) to assess sage-grouse habitat suitability at multiple spatial scales (mid-, fine- and site-scale) by examining scale-specific indicators that represent both habitat requirements (i.e., food, water, cover, security) and threats to habitat (i.e., anthropogenic disturbances, proximity of trees to leks). However, invasive annual grasses are not included as an indicator of habitat suitability at any scale of the HAF (Stiver et al. 2015). This omission has been recognized by both authors and implementors of the HAF as a shortcoming that should be remedied, as supported by scientific literature.

The purpose of this document is to:

- Provide scientifically based rationale for including invasive annual grass cover as an additional indicator in HAF site-scale habitat assessments (Stiver et al. 2015, revised), and
- Recommend scale-specific benchmarks for invasive annual grass cover for HAF site-scale assessments based on scientific literature relevant to that scale.

RATIONALE

Research has shown that invasive annual grasses can reduce habitat suitability for sage-grouse, at the site-scale (i.e., microhabitat), by displacing native vegetation and altering habitat composition and structure (Chambers et al. 2016, Coates et al. 2017, Brussee et al. 2022). This degradation can cause sage-grouse to avoid areas with invasive annual grasses (Lockyer et al. 2015, Coates et al. 2017, Poessel et al. 2022) and can cause lower occupancy and survival rates in areas with invasive annual grasses (Wik et al 2002, Kirol et al. 2012, Lockyer et al. 2015). General speaking, studies have shown that greater sage-grouse will use areas with relatively low amounts of invasive annual grasses for nesting and brood-rearing; however, in areas with

relatively higher amounts of invasive annual grasses, rates of occupancy and/or survival are lower (Coates et al. 2017, Dinkins et al. 2016, Lockyer et al. 2015, Schreiber et al. 2015, Stonehouse et al. 2015, Wik 2002).

For example, a study conducted in Nevada and California found that cheatgrass abundance was the single greatest micro-habitat feature distinguishing greater sage-grouse nest sites from random sites in the study area and that average cheatgrass cover at nest sites (7.1%; SE=1.0) was lower than at random sites (13.3%; SE=1.2) (Lockyer et al. 2015). A study in Idaho found that successful nests had lower average cheatgrass cover (1%) than unsuccessful nests (4%) while successful broods had lower average cheatgrass cover (2%) than unsuccessful broods (6%) (Wik et al. 2002). In Nevada and California, a study indicated that > 5% annual grass cover was unsuitable for GRSG during nesting and brood-rearing (Coates et al. 2017). They also recommended suitability categories for invasive annual grasses in nesting habitat specific to xeric sites (<2.5% invasive annual grass cover is suitable, 2.5 – 4.8% is marginal, >4.8% is unsuitable) and mesic sites (<2.5% invasive annual grass cover is suitable, 2.5 – 5.2% is marginal, >5.2% is unsuitable).

Although individual studies reported different values of invasive annual grass cover associated with sage-grouse site selection and nest/brood success, there was notable overlap. In studies that examined site selection (not success), they reported mean values ranging between <1% to 17% cover of invasive annual grasses at used sites (regardless of success), with most reporting <7% cover (**Table 1**). In studies that examined nest and/or brood success relative to invasive annual grasses, they reported mean values between 1% to 7% for successful sites (Wik et al. 2002, Lockyer et al. 2015) (**Table 1**). Of note, some studies have shown that sage-grouse exhibit maladaptive site selection to invasive annual grasses and other habitat indicators due to nest site fidelity (Coates et al. 2017, Brussee et al. 2022, Cutting et al. 2019) so nest/brood success may be a more accurate indicator of the impacts of invasive annual grasses to sage-grouse habitat suitability.

Collectively, this research indicates that invasive annual grasses can reduce habitat suitability for nesting and brood-rearing greater sage-grouse at the site-scale and that habitat suitability generally decreases as invasive annual grass cover increases. It is recommended that invasive annual grass cover be included as a habitat suitability indicator for sage-grouse habitat assessments conducted at the HAF site-scale, as described in the Recommendations section below.

Table 1. The table below lists and describes key aspects and findings from research that has examined the relationship of invasive annual grass cover to greater sage-grouse habitat selection and/or survival at the site-scale (i.e., microhabitat). Note that no studies specifically examined the potential impacts of invasive annual grasses on Gunnison sage-grouse.

Citation	State	Scale/ Extent	Season	Applicable Findings
Coates et al. 2017	NV	10m of nest	Nesting	Mean invasive annual grass cover at nests was 4.8% in xeric sites and 5.1% in mesic sites. Authors recommended suitability categories: • xeric sites (suitable is <2.5%, marginal is 2.5 – 4.8%, unsuitable is >4.8%) and • mesic sites (suitable is <2.5%, marginal is 2.5 – 5.2%, unsuitable is >5.2%)

Citation	State	Scale/ Extent	Season	Applicable Findings
		10m of brood	Brood-rearing	Mean invasive annual grass cover at brood sites was 4.3% in xeric 4.79% in mesic. Authors recommended suitability categories: • xeric sites (suitable is <2.5%, marginal is 2.5 – 4.3%, unsuitable is >4.3%) and • mesic sites (suitable is <2.5%, marginal is 2.5 – 4.8%, unsuitable is >4.8%)
Dinkins et al. 2016	WY	5m of nest	Nesting	Mean invasive annual grass cover at nests 2.14% (SE=0.11) which was higher but similar to random sites with a mean of 1.75% (SE=0.10).
Kirol et al. 2012	WY	8m of nest	Nesting	Nest selection was negatively related to the presence of cheatgrass when compared to available habitat. "Cheatgrass occurred at 6% of the nest locations and 19% of the corresponding random locations."
Lockyer et al. 2015	NV/CA	0.01ha of nest	Nesting	Average cover of cheatgrass at nests and random sites was 7.1% (SE=1.0) and 13.3% (SE=1.2), respectively. Sites with >7.1% cheatgrass cover had lower nest success. Cheatgrass was the single greatest micro-habitat feature distinguishing nests from random sites.
Schreiber et al. 2015	WY	20m of brood	Brood-rearing	Cheatgrass cover was lower at early brood-rearing sites (0.55% +/-0.38%) than at random points (0.71% +/-0.30%) but similar. Cheatgrass cover was lower at late brood-rearing sites (1.44% +/-0.65%) than at random points (2.13% +/-0.72%) but similar.
Stonehouse et al. 2015	WA		Nesting	Mean cover of invasive annual grasses at nest sites was 13% (SE=1); random sites were not assessed.
Wik et al. 2002	ID	20m of nest	Nesting	All nests had an average of 3% cover. Successful nests had lower average cheatgrass cover (1% in 20m transect) than unsuccessful nest (4% in 20m transect).
		20 m of brood	Brood-rearing	All broods had average of 5% cheatgrass. Unsuccessful broods has lower cheatgrass (2% in 20m) at use-sites than successful broods (6% in 20m).
Wing et al. 2014	UT	15m of nest	Nesting	All nest, brood, and non-brooding use sites had cheatgrass which was similar in cover to random sites. Cheatgrass cover means: Nest mean = 17.6% (0.8), Brood mean = 15.6% (0.8), non-brood females and males = 14.3% (0.7), random sites mean = 15.9% (0.8).

RECOMMENDATIONS

Based on the findings of the research summarized above (**Table 1**), invasive annual grass cover should be assessed as a habitat indicator for nesting/early brood-rearing, late brood-rearing, and wintering habitat during a HAF site-scale assessment using the following benchmarks, adjusted as warranted by best available science. Note that these benchmarks were based more heavily on research that examined nest and brood *success* relative to invasive annual grass cover (more so than research that examined *use versus availability* of habitat) because sage-grouse have been shown to exhibit maladaptive site selection (Coates et al. 2017, Brussee et al. 2022, Cutting et al. 2019). Invasive annual grasses are not assessed at the site-scale for leks because the AIM strategy does not include leks in its sampling strategy; however, invasive annual grasses are assessed for lekking habitat at the HAF *fine-scale*. There was not sufficient research to suggest different

benchmarks for winter habitat due to a lack of research on winter habitat as compared to nesting and brood-rearing. If future research indicates otherwise, benchmarks may be adjusted accordingly.

Table 2. Recommended habitat suitability benchmarks for assessing invasive annual grass at the HAF site-scale.

Habitat Indicator	Metric	Benchmarks		
		Suitable	Marginal	Unsuitable
Invasive Annual Grass	% cover	<2%	2 – 5%	>5%

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Attachment 4-2. Justification for Conifer as a Habitat Suitability Indicator at the Sage-grouse Habitat Assessment Framework (HAF) Site-Scale

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BACKGROUND

Recent research has shown that conifer expansion into native sagebrush communities can reduce habitat suitability for sage-grouse (Nisbet et al 1983, Doherty et al. 2010, Fedy et al. 2014, Doherty et al. 2016, Westover et al. 2016, Baxter et al. 2017, Picardi et al. 2020, Saher et al. 2021, Brussee et al. 2022, Roth et al. 2022). The Bureau of Land Management (BLM) uses the Sage-grouse Habitat Assessment Framework (HAF; Stiver et al. 2015) to assess sage-grouse habitat suitability at multiple spatial scales (mid-, fine- and site- scale) by examining scale-specific indicators that represent both habitat requirements (i.e., food, water, cover, security) and threats to habitat (i.e., anthropogenic disturbances, predation risk). However, conifer cover is not included as an indicator of habitat suitability at any scale of the HAF (Stiver et al. 2015). This omission has been recognized by BLM personnel as a shortcoming of the HAF that should be remedied, as supported by scientific literature.

The purpose of this document is to:

- Provide scientifically based rationale for including conifer as an additional habitat indicator in HAF site-scale habitat assessments (Stiver et al. 2015, revised), and
- Recommend scale-specific thresholds for conifer for HAF site-scale assessments based on scientific literature relevant to that scale.

RATIONALE

Studies that examine site-scale sage-grouse habitat (also referred to as microhabitat) often do not report or analyze conifer as a habitat characteristic, likely because it is not a habitat requirement of sage-grouse but rather a deterrent, especially at such a small scale (e.g., within 10m of a nest site). In a review of over 40 peer-reviewed microhabitat studies on sage-grouse, no study reported conifer cover as a standard microhabitat characteristic for sage-grouse (such as sagebrush cover, grass height, forb cover) nor did they test for a relationship between conifer and sage-grouse. A few studies, such as Duvuvuei 2013 and Wing 2014, reported frequency of nests located under conifer in Utah (see **Table 1**). Wing 2014 reported that nesting under juniper was rare and that only one of those nests was successful. Duvuvuei 2013 showed that nests were commonly placed under junipers, especially by translocated females, but suggested that use of

juniper for nesting was due to maladaptation caused by a lack of sagebrush cover and extensive juniper expansion into the study area.

Most studies that examine the potential impacts of conifer on sage-grouse and their habitat are conducted at landscape scales, typically estimating conifer cover near sage-grouse locations (e.g., within 1,000m of a nest site) using remotely sensed landcover data. These studies have established that conifer cover, even in low amounts (e.g., <2 % cover), can negatively impact sage-grouse across all seasons (lekking, nesting, brood-rearing and wintering) causing avoidance and/or reduced vital rates (Nisbet et al 1983, Doherty et al. 2010, Fedy et al. 2014, Doherty et al. 2016, Westover et al. 2016, Baxter et al. 2017, Picardi et al. 2020, Saher et al. 2021, Brussee et al. 2022, Roth et al. 2022). However, these findings are mostly applicable to HAF mid- and/or fine-scale assessments which are also landscape level.

Given the established negative impacts of conifer cover on sage-grouse at landscape scales and the lack of conifer being reported in microhabitat studies (i.e., suggesting avoidance of conifer at site-scales), it is recommended that conifer be included as a habitat suitability indicator for sage-grouse habitat assessments conducted at the HAF site-scale, as described in the Recommendations section below.

Table 1. The table below lists and describes key aspects and findings from research that has examined the relationship of conifer to greater sage-grouse habitat selection and/or survival at the site-scale (i.e., microhabitat). Note that no studies specifically examined the potential impacts of invasive annual grasses on Gunnison sage-grouse.

Name	Tree Type	State	Season	Applicable Findings
Wing 2014	Juniper	UT	Nesting	GRSG females rarely selected juniper as a nesting shrub (n=4) and only one nest was successful.
Duvuvuei 2013	Juniper	UT	Nesting	Translocated GRSG females (24%) nested under juniper but was accredited to lack of sagebrush cover and extensive conifer expansion in study area.

RECOMMENDATIONS

Based on the rationale above, conifer should be assessed as a habitat indicator during HAF site-scale assessments for nesting, brood-rearing, and wintering habitat. Conifer is not being added as an additional indicator in lek assessments because existing lek indicators already incorporate conifer and other trees. The metric used to assess conifer suitability is the count of conifer and, if available, the height of those conifer relative to surrounding sagebrush (or native shrubs, if used as a surrogate), using the benchmarks shown below (adjusted as warranted by best available science). Percent conifer is not recommended as the primary metric for conifer suitability because there is insufficient science to support a benchmark at the site-scale; however, percent conifer cover may still be used as ancillary information, as interpreted by local experts, to support assessment of conifer as a habitat suitability indicator.

Table 2. Recommended habitat suitability benchmarks for assessing conifer at the HAF site-scale.

Habitat Indicator	Metric	Benchmarks		
		Suitable	**Marginal**	**Unsuitable**
Conifer	Count	• 0 trees (absence of conifer)	If height is unknown: • 1 tree If height is known: • 1 tree that is taller than local average sagebrush height, and/or • <=3 trees that are not taller than local average sagebrush height	If height is unknown: • >1 tree If height is known: • >1 tree that is taller than local average sagebrush height, and/or • >3 trees that are not taller than local average sagebrush height

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Appendix 5

Livestock Grazing Best Management Practices and Design Features and Supplemental Information

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Appendix 5. Livestock Grazing Best Management Practices and Design Features and Supplemental Information

5.1 Livestock Grazing Management Best Management Practices and Design Features

The following best management practices (BMP) provide a list of strategies, practices, or design features to be considered during implementation of the Approved RMP Amendment. These measures are not required to be considered in every instance but can be useful to aid in proper livestock grazing management in GRSG habitats. The applicability and overall effectiveness of each BMP cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some BMPs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations. For example, variations could be required for the following reasons:

- A specific BMP is not applicable to the site-specific conditions of the project/activity.
- An alternative BMP, a state-implemented conservation measure, or plan-level protection provides equal or better protection for GRSG or its habitat.
- A specific BMP will not avoid or minimize impacts to GRSG or its habitat.

5.1.1 Coordination

- 43 CFR 4100 regulations direct BLM to consult, cooperate and coordinate when engaging in program work. The BLM coordinates with Federal, State, county, Indian tribal and local governmental entities, institutions, organizations, corporations, associations, and individuals when authorizing grazing on BLM lands. In GRSG habitat management areas, these communication efforts should include coordination on how livestock grazing practices could be managed across both BLM-administered lands and voluntarily on non-BLM-administered lands, in partnership with interested permittees and lessees, to improve GRSG habitat conditions.

5.1.2 Best Management Practices for Livestock Grazing Management

- Set priorities for grazing management activities (e.g., monitoring, authorization renewals, field checks) following direction in agency policy or implementation guidance. When considering competing priorities in GRSG habitat, considerations should include level of management priority (PHMA vs. GHMA) and focusing on areas where current livestock grazing management is a significant causal factor to not meeting or making significant progress towards meeting the Nevada and California's Land Health Standards (LHS) 3 in northeastern Nevada and LHS 5 in northwestern Nevada and California, and those containing riparian areas, including wet meadows. Other criteria for prioritization can include the need to respond to urgent natural resource concerns (e.g., fire) and legal obligations.
- When current livestock management practices are determined to not be meeting or making progress towards meeting the LHS 3 (in NE NV) or LHS 5 (in NV and CA) (following appropriate consultation, cooperation and coordination, consistent with BLM Handbook H-4180-1), implement changes in grazing management through grazing authorization modifications, or allotment management plan implementation. Potential modifications, either within the existing terms and

conditions or considered as additional alternatives in grazing authorization NEPA analysis as a threshold/response, (not presented in any priority order) could include, but are not limited to, changes in:

  - Season or timing of use;
  - Numbers of livestock;
  - Distribution of livestock use;
  - Duration and/or level of use;
  - Kind of livestock (e.g., cattle, sheep, horses, or goats) (Briske et al. 2011); and
  - Range improvements.

- Locate supplements (salt, mineral, protein, etc.) away from water sources, meadows, riparian areas, swales, and GRSG leks in locations that increase livestock distribution unless effective control of livestock to avoid detrimental impairment of any riparian area or GRSG habitats can be ensured.
- When using salt or mineral supplements, place them outside intact sagebrush stands to reduce impacts to GRSG breeding habitat. For example, place supplements in existing disturbed sites, areas with reduced sagebrush cover, to reduce impacts on GRSG breeding habitat.
- During the lekking season, encourage minimal vehicle use and maintenance activities associated with livestock management during lekking (before 9 am and after 6 pm) within 0.6 miles of an active lek.
- To decrease attracting predators or decreasing water quality, whenever found and wherever possible, remove dead livestock from GRSG habitat and dispose of in ways that does not attract predators to GRSG habitat. If it is not possible to entirely remove livestock carcasses, they should, at a minimum, be removed from riparian areas and water sources.
- In PHMA and GHMA, areas that have received vegetation treatments should be rested from livestock grazing until resource monitoring data verifies the treatment objectives specific to the purposes of the treatment are being met and an appropriate grazing regime has been developed. Examples of vegetation treatments include seedings, hazardous fuels reduction treatments, emergency stabilization and rehabilitation efforts.
- Avoid disturbing lekking and roosting GRSG from human, guard animal, and sheep activities by trailing, overnighting, watering, and bedding sheep on public lands at least 0.6 miles from active leks (dates of lek activity determined locally, approximately March 15–May 1 in lower elevations and March 25–May 15 in higher elevations).
- When trailing livestock during the lekking or nesting season, use roads or existing trails, to the extent possible.
- When available, use GRSG habitat use-pattern mapping or habitat monitoring to strategically adjust livestock distribution to benefit occupied GRSG breeding habitat, include herding, salting, and water-source management (e.g., turning troughs/pipelines on/off and extending pipelines/moving troughs) in grazing programs.
- Ensure that permittees are informed of management and movement requirements related to avoiding recent burns, habitat rehabilitation, or other restoration sites.
- Identify and, when feasible, establish strategically located forage reserves, focusing on areas where restoration to GRSG habitat is unlikely or lower priority habitat restoration areas.

5.1.3 Design Features for Range Improvements

- When installing new range improvement projects in PHMA, avoid construction during the applicable seasonal use periods associated with lekking, nesting, or brood rearing seasonal habitats (March 1 –

July 15, or as identified for local variability in coordination with the state wildlife agency or other appropriate agency with management expertise and authority).

- Use temporary range infrastructure, such as troughs, fences, and supplements, where feasible and appropriate, to meet management objectives.
- Install shutoff valves at spring sources and troughs. Ensure shutoff valves are closed and troughs are drained when livestock are not utilizing the pasture, as consistent with the water laws of the State within which the land is located.
- Install lids on spring collection boxes.
- Install floats in troughs to prevent overflow and keep water at spring sources, as consistent with the water laws of the State within which the land is located.
- Ensure that new and existing livestock troughs and open water storage tanks are fitted with ramps to facilitate the use of and escape from troughs by GRSG and other wildlife; do not use unsecured, unstable, or ineffective items such as floating boards or similar objects.
- Locate troughs outside meadows, swales, and riparian areas.
- Design new water developments to maintain hydrologic function of spring sources, water courses and associated riparian habitat, as consistent with State water laws.
- Consider virtual fencing opportunities, as appropriate.
- To minimize risk of noxious or invasive plant spread, require all heavy equipment used in construction of range improvements to be thoroughly cleaned of all soil and plant material prior to entering public lands.
- To minimize livestock concentration impacts on nesting and early brood rearing sage-grouse, locate new livestock handling facilities (such as corrals) away from active leks and outside of nesting habitat at least by 1.2 miles (Manier et al. 2014). Where corrals already exist, minimize activity to the extent possible to accomplish livestock management objectives outside nesting and early brood rearing season.
- Design new and maintain existing water projects to avoid standing pools of shallow water that could spread West Nile Virus.

5.1.4 Drought Response

- When completing a fully processed grazing authorization in GRSG habitat, incorporate strategies for livestock management during drought conditions.
- During drought conditions use a recognized drought indicator, such as the Drought Monitor, Vegetation Drought Response Index, or Palmer Drought Severity Index, to determine when abnormally dry or drought conditions are developing, present, or easing. When such conditions are developing or present:
  - Conduct pre-season assessments prior to livestock turn out.
  - Monitor vegetation conditions during authorized livestock use periods to determine need for early removal and/or other changes to meet seasonal RMP objectives.
- During drought periods, prioritize evaluating effects of drought in PHMA relative to GRSG needs for food and cover (including riparian areas); ensure that post-drought management allows for vegetation recovery, based on ecological potential, that meets GRSG needs in priority GRSG habitat areas. Where ESDs or STMs are lacking for an area, the best available information to achieve the GRSG needs should be used.
- If livestock grazing is deferred due to drought, reevaluate vegetation and GRSG habitat indicators that measure GRSG habitat prior to reauthorization of grazing.

5.1.5 Nevada Specific BMPs

If results from the GRSG Habitat Assessment Framework indicate that GRSG habitat benchmarks are found to be un-suitable, and the land health evaluation results in a finding that Standards are not met or progress made towards meeting, and the determination concludes that current livestock grazing is a causal factor, and until appropriate modifications are incorporated through the grazing authorization renewal process, the following management strategies could be considered that may include, but are not limited to, the following, with considerations to site specific seasonal date restrictions:

- Provide periods of rest or deferment during critical growth periods of key vegetation species
- Manage grazing duration and intensity to allow plant growth sufficient to meet or make progress towards meeting GRSG habitat objectives (Table 2-2)
- Employ herd management techniques to minimize impacts of livestock on breeding, nesting, and brood-rearing habitat during the breeding season (March 1 to June 30; Lek—March 1 to May 15, and Nesting—April 1 to June 30)
- Consider any temporary projects that can avoid, minimize, or mitigate livestock impacts (e.g., temporary fencing or temporary water hauling locations;
- To prevent impacts to nesting GRSG, work with permittees to avoid concentrated turn-out locations for livestock within 4 miles of active and pending leks from March 1 to June 30 with consideration of quality of site-specific habitat, current bird activity, probability of sage-grouse nesting within the radius area, and duration intensity of the use.
- Avoid domestic sheep use and bedding areas and herder camps within 2 miles of active and pending leks from March 1 to June 30
- Utilizing land features and roads on maps provided to the permittee to help delineate livestock use avoidance areas

Appendix 6

Glossary

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Appendix 6. Glossary

Acquisition. Acquisition of lands can be pursued to facilitate various resource management objectives. Acquisitions, including easements, can be completed through exchange, Land and Water Conservation Fund purchases, donations, or receipts from the Federal Land Transaction Facilitation Act sales or exchanges.

Adaptive management. A type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices.

Adjacent (rights-of-way). Installation of authorized improvements parallel, near, or next to existing authorized rights-of-way.

Allocation. The identification in a land use plan of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions.

Amendment. The process for considering or making changes in the terms, conditions, and decisions of approved Resource Management Plans or management framework plans. Usually only one or two issues are considered that involve only a portion of the planning area.

Appropriate management level (AML). AML shall be expressed as a population range within which WH&B can be managed for the long term. AMLs previously established as a single number will be modified to include an upper and lower limit. For reporting purposes, the upper limit of the AML range will be used. AML applies to the number of adult wild horses or burros to be managed within the population and does not include current year's foals. All WH&B one year of age and older are considered adults (a foal is considered one year of age on January 1 of the year following its birth). The AML upper limit shall be established as the maximum number of WH&B which results in a TNEB and avoids a deterioration of the range. This number should be below the number that would cause rangeland damage (refer to Animal Protection Institute of America v. Nevada BLM, 118 IBLA 63, 75, (1991)). The AML lower limit shall normally be established at a number that allows the population to grow (at the annual population growth rate) to the upper limit over a 4-5 year period, without any interim gathers to remove excess WH&B. Some HMAs may require more frequent removals to maintain population size within AML. For HMAs that require more frequent gathers, the authorized officer should consider management options which would either extend the gather cycle or broaden the AML range; amend or revise the LUP to remove the area's designation as an HMA; or manage the HMA for non-reproducing wild horses.

Area of Critical Environmental Concern (ACEC). Areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. The identification of a potential ACEC shall not, of itself, change or prevent change of the management or use of public lands.

Artifact. A human-modified object, often appearing on an archaeological site, that typically dates to over 50 years in age.

Authorized Officer. Any employee of the BLM to whom authority has been delegated to perform the duties described.

Best management practices (BMPs). A suite of techniques that guide or may be applied to management actions to aid in achieving desired outcomes. BMPs are often developed in conjunction with land use plans, but they are not considered a planning decision unless the plans specify that they are mandatory.

Biologically significant unit (BSU). A geographical/spatial area that includes Greater Sage-Grouse priority habitat management areas that is used as the basis for comparative calculations to support evaluation of changes to habitat. In Utah, each BSU correlates to the priority habitat management area within a population area.

Co-location (communication sites). The installation of new equipment/facilities on or within or adjacent to existing authorized equipment/facilities or within a communication site boundary as designated in the Communication Site Plan.

Co-location (electrical lines). Installation of new rights-of-way adjacent to current ROWs boundaries, not necessarily placed on the same power poles.

Co-location (other rights-of-way (ROW). Installing new authorized ROWs within or on the existing footprint of an approved ROW boundary.

Communication site. Sites that include broadcast types of uses (e.g., television, AM/FM radio, cable television, broadcast, translator) and non-broadcast uses (e.g., commercial or private mobile radio service, cellular telephone, microwave, local exchange network, passive reflector).

Controlled surface use (CSU). CSU is a category of moderate constraint stipulations that allows some use and occupancy of public land while protecting identified resources or values and is applicable to fluid mineral leasing and all activities associated with fluid mineral leasing (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads). On BLM-administered lands, CSU areas are open to fluid mineral leasing but the stipulation allows the BLM to require special operational constraints, or the activity can be shifted more than 200 meters (656 feet) to protect the specified resource or value.

Cultural resources. The present expressions of human culture and the physical remains of past activities, such as historic buildings, structures, objects, districts, landscapes, and archaeological sites. These resources can be significant in the context of national, regional, or local history, architecture, archaeology, engineering, or culture. They may also include sacred sites and natural features of landscapes that are significant to living communities.

Cultural resource inventories. Both a systematic review of records, files, and archived databases and a survey to determine the past human use of an area.

Cumulative Impact (Effect). The impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

De-watering. The process of removing surface and ground water from a particular location.

Designated Roads and Trails. Those roads and trails that are specifically identified by the BLM as the only allowable routes for motor vehicle travel in the specific area involved. Travel on designated roads and trails may be allowed seasonally or yearlong. Additional roads or trails may be constructed and authorized for travel as need dictates in conformance with the land use plan or activity plan.

Disposal lands. Transfer of public land out of federal ownership to another party through sale, exchange, Recreation and Public Purposes Act of 1926, Desert Land Entry or other land law statutes.

Disturbance response groups. A process that examines local knowledge, soil mapping data and published literature on soils, plant ecology, plant response to various disturbances, disturbance history of the area, and any other important attributes necessary to sort pre-existing ecological sites into groups of ecological sites based on their responses to natural or human-induced disturbances.

Easement. A right afforded a person or agency to make limited use of another's real property for access or other purposes.

Ecological site. A distinctive kind of land with specific characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

Ecological site description. A report that provides detailed information about an ecological site.

Erosion. The wearing away of the land surface by running water, wind, ice, or other geological agents.

Ethnographic resources. Variations of natural resources and standard cultural resource types. They are subsistence and ceremonial locales and sites, structures, objects, and rural and urban landscapes assigned cultural significance by traditional users.

Exchange. A transaction whereby the federal government receives land or interests in land in exchange for other land or interests in land.

Existing habitat. Habitat that currently supports greater sage-grouse, even if not currently occupied. This can include seasonal habitats, such as wintering, nesting and brood-rearing**.**

Exploration. Active drilling, geophysical operations, surface sampling and trenching, or small scale mining or similar activities, to: a. Determine the presence of the mineral resource; or b. Determine the extent of the reservoir or mineral deposit.

Feature. In reference to archaeology, a feature is a collection of one or more contexts representing some non-portable activity, such as a hearth or wall.

Federal mineral estate. Subsurface mineral estate owned by the US and administered by the BLM. Federal mineral estate under BLM jurisdiction is composed of mineral estate underlying BLM lands, tribal lands, privately owned lands, and state-owned lands.

Federal mineral interest. See Federal mineral estate.

Fluid minerals. Oil, gas, coal bed natural gas, and geothermal resources.

Fully Processed Grazing Authorization. A grazing permit or lease that has been issued in accordance with all applicable laws, regulation, and policy including the NEPA, Endangered Species Act (ESA), and decision processes provided in 43 CFR 4160.

General Habitat Management Areas (GHMA). Lands that are, or have the potential to become, occupied seasonal or year-round habitat outside of PHMA, managed to sustain GRSG populations. These areas are defined differentially by state wildlife management agencies, but generally are of poorer GRSG habitat quality with reduced occupancy when compared to PHMA. Some state wildlife agencies have identified areas of GHMA as important for restoration, connectivity, or seasonal habitats. The objective intent for GHMA is to maintain habitat conditions to support GRSG populations consistent with the state agency designations of recovery, connectivity, or seasonal habitats.

Geophysical exploration. Efforts to locate or better define mineral or oil and gas deposits, using geophysical methods such as seismic refraction, electrical resistivity, induced magnetism, or other methods.

Geothermal energy. Natural heat from within the Earth captured for production of electric power, space heating, or industrial steam.

GRSG nesting habitat. Areas with protective grass and high lateral shrub cover where hens nest, typically under sagebrush shrubs.

GRSG early brood-rearing habitat. Upland sagebrush sites relatively close to nest sites, typically characterized by high species richness with an abundance of forb sand insects, where sage-grouse hens raise young chicks (<21 days).

GRSG winter habitat. Sagebrush habitats that provide access to sagebrush above the snow for all food and cover requisite needs.

Habitat. Areas that currently provide GRSG resources (such as space, food, cover, and water) and environmental conditions (such as temperature, precipitation, presence or absence of predators and competitors) that promote occupancy of sage-grouse during a particular stage of its annual life cycle (e.g., breeding, nesting) and allows for them to survive and reproduce.

Habitat Assessment Framework. The Habitat Assessment Framework (HAF) is a tool to measure the suitability of GRSG habitat at multiple scales.

> **Mid-scale HAF areas**. Areas conceptually linked to GRSG dispersal capabilities in population and subpopulation areas as described by Connelly and others (2004). Mid-scale HAF delineations also conceptually provide the life requisite space for GRSG dispersal, allowing for migration movements based on the following key inputs: availability of sagebrush habitat, size and number of habitat patches, connectivity of habitat patches, characteristics of linkage areas between patches, landscape matrix and edge effects, and anthropogenic disturbances.
>
> **Fine-scale HAF areas**. Fine-scale HAF delineations generally describe the extent of all seasonal use areas used by local populations. Fine-scale areas include suitable habitats within home range areas that have contiguous mosaics of sagebrush shrublands or grassland/sagebrush connecting seasonal use areas.

Indicators. Factors that describe resource condition and change and can help the BLM determine trends over time.

Intact landscape. Landscapes with healthy sagebrush ecosystems that have not been disrupted by anthropogenic activities or catastrophic natural events, including invasion by non-native grasses and associated wildfires.

Invasive Species (Invasive Plant Species, Invasives). An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. The species must cause, or be likely to cause, harm, and be exotic to the ecosystem it has infested before considered invasive.

Key areas of critical environmental concern. Special management areas that have been identified as having a high utility for GRSG conservation. These land allocations were designated in previous RMPs to protect other relevant and important resource values; however, they also contain quality GRSG habitat, are within PHMA, and contain leks. They should be priority areas for GRSG management as well as the values for which the ACEC was designated; site-specific ACEC management plans will be prepared at the implementation level.

Key research natural area. A special type of ACEC that was designated in a previous RMP to protect specific intact representative native plant communities. These areas are in PHMA and are used for long term vegetation monitoring of relatively unaltered native plant communities important for GRSG. These areas can provide baseline vegetation information on natural processes such as successional changes, and future vegetation shifts in the plant communities from changes in precipitation and temperature (climate change). Key RNAs either contain GRSG leks or are within 0.1 to 4 miles of leks and are, or likely are, used for nesting, brood-rearing, foraging, breeding or wintering.

Land tenure adjustments. Land ownership or jurisdictional changes. To improve the manageability of BLM-administered lands and their usefulness to the public, the BLM has numerous authorities for repositioning lands into a more consolidated pattern, disposing of lands, and entering into cooperative management agreements. These land pattern improvements are completed primarily through the use of land exchanges but also through land sales, through jurisdictional transfers to other agencies, and through the use of cooperative management agreements and leases.

Leasable minerals. Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. These include energy-related mineral resources such as oil, natural gas, coal, and geothermal, and some nonenergy minerals, such as phosphate, sodium, potassium, and sulfur. Geothermal resources are also leasable under the Geothermal Steam Act of 1970.

Lease. Section 302 of the Federal Land Policy and Management Act of 1976 provides the BLM's authority to issue leases for the use, occupancy, and development of public lands. Leases are issued for purposes such as a commercial filming, advertising displays, commercial or noncommercial croplands, apiaries, livestock holding or feeding areas not related to grazing permits and leases, native or introduced species harvesting, temporary or permanent facilities for commercial purposes (does not include mining claims), residential occupancy, ski resorts, construction equipment storage sites, assembly yards, oil rig stacking sites, mining claim occupancy if the residential structures are not incidental to the mining operation, and water pipelines and well pumps related to irrigation and nonirrigation facilities. The regulations establishing procedures for processing these leases and permits are found in 43 CFR 2920. (BLM)

Lease stipulation. A modification of the terms and conditions on a standard mineral lease form established at the time of the lease sale.

Lek. The BLM is adopting the Western Association of Fish and Wildlife Agencies (WAFWA) lek definitions (Cook et al., 2022)[1].

> **Lek.** A lek is a traditional location where at least 2 male greater sage-grouse congregate during at least 2 springs within a 10-year period to perform their strutting display and opportunistically breed with females. Although males are territorial on leks and occupy an area, not a point, the representative location for the lek is the estimated or calculated center of the display activity. The 'lek' is the standard reporting and analysis unit for evaluating population status and long-term trends.
> **Active lek**. A lek that has more than 2 males counted during two or more lek counts within the last 10 years.
> **Inactive lek**. A lek at which all observations within the last 10 years have been less than 2 males and that has had at least 2 males recorded during a lek count between 11 to 20 years ago.
> **Pending Active lek**. A lek with one observation of at least 2 males in the last 10 years and at least one observation of at least 2 males more than 10 years ago.
> **Sub-lek**. A sub-lek is similar to a lek in most respects, except that its location represents an actual activity center for a specific year or series of years while a lek can represent multiple sub-leks over an extended number of years. Sub-leks are generally ≤¼ the average inter-lek distance from other sub-leks included within the same lek. In relatively static situations, there may be only one sub-lek within a lek. The sub-lek is not used to evaluate population status and long-term trends but may be used to examine breeding behavior, habitat use, or other aspects of natural history
> **Undetermined Lek**. A location where male sage-grouse are displaying that has not been documented in multiple years and does not meet the definition of a lek. Sage-grouse may spontaneously display in an alternate location that is not maintained through time; therefore, any undetermined leks should be verified in subsequent breeding seasons.

Linkage and Connectivity Habitat Management Area (LCHMA). BLM-administered lands that have been identified as broader regions of connectivity important to facilitate the movement of Greater Sage-Grouse and maintain ecological processes.

Linkage Management Area. Areas that have been identified as broader regions of connectivity important to facilitate the movement of GRSG and to maintain ecological processes.

Locatable minerals. Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of gold, silver, and other uncommon minerals not subject to lease or sale (17 Stat. 19-96).

Major Rights of Way. (Refer to definition in Rights of Way)

Mineral. Any naturally formed inorganic material, solid or fluid inorganic substance that can be extracted from the earth, any of various naturally occurring homogeneous substances (as stone, coal, salt, sulfur, sand, petroleum, water, or natural gas) obtained usually from the ground. Under federal laws, considered as locatable (subject to the general mining laws), leasable (subject to the Mineral Leasing Act of 1920), and saleable (subject to the Materials Act of 1947).

[1] Note that the WAFWA definition of lek does not influence how BLM estimates buffers for protection of leks from disturbance (i.e., lek buffers can be measured from the perimeter of the area where males display when perimeters are known and the approach is supported by state wildlife agencies).

Mineral entry. The filing of a claim on public land to obtain the right to any locatable minerals it may contain.

Mineral estate. The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mining claim. A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law and local laws and rules. A mining claim may contain as many adjoining locations as the locator may make or buy. There are four categories of mining claims: lode, placer, millsite, and tunnel site.

Mining Law of 1872, as amended. Provides for claiming and gaining title to locatable minerals on public lands. Also referred to as the "Mining Law."

Minor Rights of Way. (Refer to definition for Rights of Way).

Mitigation. Includes specific means, measures, or practices that could reduce, avoid, or eliminate adverse impacts. Mitigation can include avoiding the impact altogether by not taking a certain action or parts of an action; minimizing the impact by limiting the degree of magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitation, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

Modification. A change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

Naturalness. Refers to whether an area looks natural to the average visitor who is not familiar with the biological composition of natural ecosystems versus human-affected ecosystems. New, nonrecreational modifications are not visually obvious or evident from trails.

National Register of Historic Places. A listing of resources that are considered significant at the national, state, or local level and that have been found to meet specific criteria of historic significance, integrity, and age.

Neighborhood Cluster. Represents a GRSG population unit and includes local aggregations of leks and seasonal habitats used by birds attending those leks based on state wildlife agency and research data.

Neighborhood Cluster Scale. Spatial scale used for population trend analyses.

No surface occupancy (NSO). A major constraint where use or occupancy of the land surface for fluid mineral exploration or development and all activities associated with fluid mineral leasing (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads) are prohibited to protect identified resource values. Areas identified as NSO are open to fluid mineral leasing, but surface occupancy or surface-disturbing activities associated with fluid mineral leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require horizontal drilling from outside the boundaries of the NSO area.

Nonenergy leasable minerals. Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. Nonenergy minerals include resources such as phosphate, sodium, potassium, and sulfur.

Non-habitat. Areas within the historical distribution of GRSG that are not occupied and are not capable of supporting GRSG or necessary habitats to support GRSG, and do not have the potential to provide habitat in the foreseeable future (< 100 years). GRSG may occasionally use these areas (e.g., migration), but these areas do not provide the necessary resources to support GRSG seasonally year-round.

Non-routine maintenance. Activities include realigning, upgrading, rebuilding, recontouring, or replacing a segment of or an entire powerline facility (e.g., change to higher voltage, changing from wood to metal poles, significantly increasing the pole height, adding additional lines, or change from above ground to buried). When non-routine activities are proposed, the BLM requires the holder to receive prior written approval. In certain circumstances, after further review and approval by the Authorized Officer, non-routine activities may be handled under established approaches as defined in the approved operation and maintenance plan or agreement. In some cases, an amendment to the authorization may be needed, in which case the BLM should ensure the holder submits an application to amend the authorization on Form SF-299. BLM approval must comply with the National Environmental Policy Act (NEPA) and other applicable law, which may require additional environmental analysis and studies or surveys.

Potential habitat. An area that is currently unoccupied by GRSG but has the potential for occupancy in the foreseeable future (< 100 years). These areas are capable of supporting GRSG habitats based on soil types, climate, etc., and can include areas of habitat previously disturbed but that can be restored to GRSG habitats through either natural succession or human intervention.

Priority Habitat Management Areas (PHMA). Areas that have the highest value to maintaining sustainable GRSG populations and can include breeding, late brood-rearing, winter concentration areas, and migration or connectivity corridors. The BLM objective intent for these areas is to maintain and enhance habitat conditions that will support persistent and healthy GRSG populations through management to minimize habitat loss and degradation.

Remoteness. Represents how far a visitor is from a road or trail. The farther a visitor is from a road or trail, the more primitive the remoteness setting.

Renewable energy. Energy resources that constantly renew themselves or that are regarded as practically inexhaustible. These include solar, wind, geothermal, hydro, and biomass. Although particular geothermal formations can be depleted, the natural heat in the Earth is a virtually inexhaustible reserve of potential energy.

Required design features (RDFs). Means, measures, or practices intended to reduce or avoid adverse environmental impacts. A suite of features that would establish the minimum specifications for certain activities (i.e., water developments, mineral development, and fire and fuels management) and mitigate adverse impacts. These design features would be required to provide a greater level of regulatory certainty than through implementation of best management practices. In general, the design features are accepted practices that are known to be effective when implemented properly at the project level.

Resource Management Plan Designated Corridor. A corridor designated through a Resource Management Plan Record of Decision in compliance with Section 202 of the Federal Land Policy and Management Act (FLPMA).

Rights-of-way (ROW). Public lands authorized to be used or occupied for specific purposes pursuant to a right-of-way grant, which are in the public interest and which require ROWs over, on, under, or through such lands. ROWs may be issued for linear features (pipelines, powerlines, communication cable, roads, canals, access, etc.) or for sites (communication towers, airports, reservoirs, pumping stations, power generating facilities, etc.). For BLM GRSG Management ROWs are divided into major or minor depending on possible level of impact to GRSG (see below). For example, ROWs for buried linear features with limited to no surface disturbance are minor, but high voltage overhead transmission lines are major. Other projects may depend on the specific development plan and location, connected actions, and will require a determination by the BLM (refer to ROW management direction in Chapter 2, Table 2-2 and 2-3). For example, to use federal pore space for carbon sequestration would be minor, however, ROWs for associated and/or connected actions such as surface facilities to support carbon sequestration could be major depending on the scope of surface disturbance and infrastructure.

> **Major ROW**. Major ROW projects include transmission lines > 100kv and distribution pipelines > 24" diameter but may also include smaller electrical transmission and/or distribution lines and pipelines, as well as, other ROW projects that require large distances, density or footprints, with high levels of activity or surface disturbance. In addition, major ROW sites may contain multiple types of above and below ground features leading to a high density of infrastructure, or many tall structures.
>
> **Minor ROW**. Minor/Other ROW Projects include typical distribution, small transmission facilities, or low volume gathering features that create minimal surface disturbance. These types include but are not limited to local roads, pipelines, powerlines, and small communication sites.

Riparian Area. A form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas (See BLM Manual 1737). Included are ephemeral streams that have vegetation dependent upon free water in the soil. All other ephemeral streams are excluded.

Runoff. The total stream discharge of water, including both surface and subsurface flow, usually expressed in acre-feet of water yield.

Sagebrush Focal Area. Areas identified by the USFWS that represent recognized "strongholds" for Greater Sage-Grouse that have been noted and referenced as having the highest densities of Greater Sage-Grouse and other criteria important for the persistence of Greater Sage-Grouse.

Spatial relationships. How one object is located in space relative to another, important for spatial analysis of cultural resources.

Split estate. This is the circumstance where the surface of a particular parcel of land is owned by a different party than the minerals underlying the surface. Split estates may have any combination of surface/subsurface owners: federal/state; federal/private; state/private; or percentage ownerships. When referring to the split estate ownership on a particular parcel of land, it is generally necessary to describe the surface/subsurface ownership pattern of the parcel.

Saleable Minerals. Minerals that may be disposed of through sales and free use permits under the Materials Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay (See also Mineral Materials).

Season of Use. A livestock grazing permit term and condition identifying the time during which livestock graze a given area to achieve management and resource condition objectives.

Special Use Authorization. A written permit, term permit, lease, or easement that authorizes use or occupancy of National Forest System lands and specifies the terms and conditions under which the use or occupancy may occur.

Stipulation (oil and gas). A provision that modifies standard oil and gas lease terms and conditions in order to protect other resource values or land uses and is attached to and made a part of individual lease requirements at the time the lease is issued. Once a mineral lease is issued, the applied stipulations cannot generally be changed or altered. Exceptions, modifications, or waivers may be granted under certain conditions outlined in the LUP. Typical lease stipulations include No Surface Occupancy (NSO), Timing Limitations (TL), and Controlled Surface Use (CSU), and Protection of Survey Corner and Boundary Line Markers. Lease stipulations are developed through the land use planning (RMP) process.

Surface Discharge. The release of produced water onto the unconfined land surface or into an existing drainage system.

Surface Disturbing Activities. An action that alters the vegetation, surface/near surface soil resources, and/or surface geologic features, beyond natural site conditions and on a scale that affects other Public Land values. Examples of surface disturbing activities may include: operation of heavy equipment to construct well pads, roads, pits and reservoirs; installation of pipelines and power lines; and the conduct of several types of vegetation treatments (e.g., prescribed fire, etc.). Surface disturbing activities may be either authorized or prohibited (WY IB-2007-029).

Surface Management Agency (SMA). Depicts surface estate Federal land for the United States and classifies this land by its active Federal surface managing agency.

Timing limitation (TL). The TL stipulation, a moderate constraint, is applicable to fluid mineral leasing, all activities associated with fluid mineral leasing (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads), and other surface-disturbing activities (i.e., those not related to fluid mineral leasing). Areas identified for TL are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified time frames. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive in nature are not allowed. Intensive maintenance, such as workovers on wells, is not permitted. TLs can overlap spatially with NSO and CSU, as well as with areas that have no other restrictions.

Traditional cultural property (TCP). A property that is eligible for inclusion in the National Register of Historic Places (NRHP) based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community's history and are important in maintaining the continuing cultural identity of the community.

Transmission line. A set of electrical current conductors, insulators, supporting structures, and associated equipment used to move large quantities of power at high voltage, usually over long distances (e.g., between a power plant and the communities that it serves).

Transmission corridor. An electric or pipeline transmission corridor is a route approved on public lands, in a BLM or other federal agency land use plan, as a location that may be suitable for the siting of electric or pipeline transmission systems.

Undisturbed habitats. Areas that are not presently directly or indirectly impacted by anthropogenic development.

Utility corridor. Tract of land varying in width forming passageway through which various commodities such as oil, gas, and electricity are transported.

Utility-scale solar. Solar projects with nameplate capacity (theoretical output registered with authorities) of 5 megawatt (MW) or higher that deliver electricity to the electricity transmission grid.

Utility-scale wind. The U.S. Department of Energy defines utility-scale wind projects as land-based and offshore projects larger than 1 megawatt (MW) (Wind Energy Technologies Office, WINDExchange, Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy).

Valid existing rights. Documented, legal rights or interests in the land that allow a person or entity to use said land for a specific purpose and that are still in effect. Such rights include but are not limited to fee title ownership, mineral rights, rights-of-way, easements, permits, licenses and adjudicated RS 2477 or RS 2339. Such rights may have been reserved, acquired, leased, granted, permitted, or otherwise authorized over time.

Vandalism. An action involving deliberate destruction or damage, in this case to cultural resources.

Watershed. The area of land, bounded by a divide, that drains water, sediment, and dissolved materials to a common outlet at some point along a stream channel (Dunne and Leopold, 1978), or to a lake, reservoir, or other body of water. Also called drainage basin or catchment

West Nile Virus. A virus that is found in temperate and tropical regions of the world and most commonly transmitted by mosquitoes. West Nile virus can cause flu-like symptoms in humans and can be lethal to birds, including Greater Sage-Grouse.

Wetlands. Those areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds.

Withdrawal. Withdrawals are used to transfer jurisdiction of management of public lands to other federal agencies.

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Appendix 7
References

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Appendix 7. References

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Appendix 8

US Fish and Wildlife Service Section 7
Concurrence Memo

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
334 Parsley Blvd.
Cheyenne, Wyoming 82007

In Reply Refer to:
FWS/R6/2025-0029235

Memorandum

To: Frank Quamen, Division Chief, Division of Wildlife, Aquatics, and Environmental Protection, Bureau of Land Management, Headquarters

TYLER ABBOTT Digitally signed by TYLER ABBOTT Date: 2025.10.22 08:39:25 -06'00'

From: Tyler Abbott, Field Supervisor, Wyoming Ecological Services Field Office

Subject: Informal Consultation on the Bureau of Land Management's Greater Sage-grouse Rangewide Planning Changes to Proposed Resource Management Plan Amendments for Idaho, Montana/Dakotas, Nevada/California, Utah, and Wyoming

This memorandum responds to the Bureau of Land Management's (BLM) September 10, 2025 email and attached amendment to the Biological Assessment (BA) issued by BLM on December 6, 2024 for the Greater Sage-Grouse Proposed Resource Management Plan Amendment (RMPA) and Final Environmental Impact Statement (FEIS). The BLM is requesting the Fish and Wildlife Service's (Service) concurrence that the proposed changes to management actions, as described in their September 2, 2025 Greater Sage-grouse Rangewide Planning Changes to Proposed RMPA for Idaho, Montana/Dakotas, Nevada/California, Utah, and Wyoming document "may affect, but are not likely to adversely affect" federally-listed or proposed species, non-essential experimental populations, or designated or proposed critical habitats that occur on BLM-administered lands in portions of the states of California, Idaho, Montana, Nevada, North Dakota, South Dakota, Utah, and Wyoming (see Species and Critical Habitat List, Attachment A).

At a programmatic level, BLM evaluated the impacts of the proposed changes in management direction to be applied for the enhancement of Greater Sage-grouse (GRSG) conservation in portions of the aforementioned states, on listed species and their critical habitats that are known to, or could, occur within BLM-administered lands. The Service provides this response pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (ESA), as amended.

Previous Greater sage-grouse Resource Plan Amendment Section 7(a)(2) Consultations

On January 8, 2025, the Service completed an informal consultation on the BLM's GRSG Proposed RMPA and FEIS. This consultation applies only to the states of Colorado and Oregon, as those states issued final Records of Decision (ROD) on January 15, 2025, and no further changes to management actions are planned in the near term. The remaining RODs for Idaho,

Montana/Dakotas, Nevada/California, Utah, and Wyoming were not finalized, and are proposed to include the changes described in the BLM's September 2, 2025 Greater Sage-grouse Rangewide Planning Changes to Proposed RMPA for Idaho, Montana/Dakotas, Nevada/California, Utah, and Wyoming document. These proposed changes to management actions are the subject of the current consultation.

In 2015, BLM signed RODs for the Rocky Mountain and Great Basin regions Approved RMPAs addressing conservation measures for the GRSG and its habitat. In general, land use planning efforts such as these are best described as a strategy for completing site-specific actions; the strategy itself has no effect on listed species or critical habitats that can be meaningfully evaluated. The Service subsequently consulted on implementation of these RMPAs on a state-by-state basis, and concurred with BLM's determinations for the states of California, Colorado, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, and Wyoming. Due to potential conflicts between habitat management objectives for GRSG and those for the Utah prairie dog (UPD; *Cynomys parvidens*), for the state of Utah, the Service determined that the proposed action may affect, and was likely to adversely affect, the UPD. Formal consultation was completed, within which the Service provided conservation measures (Attachment B) to be implemented in instances where UPD and GRSG habitat management goals were in conflict. These conservation measures remain in place for the proposed 2025 Utah ROD.

Description of the Action

The BLM worked with state wildlife agencies to adjust habitat management area alignments from the 2015 RMPAs based on new scientific information and documentation of GRSG use within the 10 western states included in the Greater Sage-Grouse Proposed RMPA and FEIS. Habitat management areas are characterized as Priority Habitat Management Area (PHMA) or General Habitat Management Area (GHMA), with PHMA having a higher protected status. Potential impacts to listed species and critical habitats were analyzed within the revised PHMA and GHMA boundaries, with consultation specifically requested by BLM on the following proposed management direction changes:

- Adjustments to habitat management areas, including a subset of PHMA with suggestions for limited exceptions for fluid energy development to provide additional conservation to GRSG habitats.
- Managing livestock grazing to meet Land Health Standards vs. strict GRSG habitat objectives.
- Where appropriate, directing wild horse gathers inside of PHMA.
- Identifying PHMA as exclusion for renewable energy development.
- Directing any new rights of way (ROW) outside of PHMA.
- Improving habitat condition to reduce the risk of GRSG predation.
- Implementing a multi-scale assessment of GRSG vs. managing to specific habitat objectives.
- Changing the scale for determining disturbance caps.
- Emphasizing the mitigation hierarchy and, if needed, ensuring consistency with State requirements for compensatory mitigation.

- Adjusting how adaptive management is calculated, both in technique and scale to allow for more biologically meaningful assessments.

In addition to (and in some instances, in lieu of) the management direction changes listed above and analyzed in the Service's January 8, 2025 informal consultation, the BLM requests consultation on the following September 2, 2025 proposed changes to management actions:

- Elimination of the PHMA with limited exceptions subset of the PHMA habitat allocation.
- Updating GHMA and PHMA boundaries in Utah.
- Changing the nesting habitat benchmark in Idaho and California/Nevada from a quantitative standard to a qualitative standard to account for habitat variability across the states.
- Changing the allocation for major rights of way in GHMA in Nevada from avoidance to open.
- Further adjustments to how adaptive management is calculated, both in technique and scale to allow for more biologically meaningful assessments.

These changes are to management directions only and inform how future on-the-ground actions will be framed; there are no on-the-ground actions directly implemented or authorized by these changes. As noted in the original BA and its amendment, any future project that implements these changed management directions at the individual Resource Management Plan (RMP) level will require site-specific Section 7(a)(2) consultation for any potentially affected species and/or designated critical habitats.

Conservation Measures

As noted above, the 2015 RMPA consultations resulted in the development of conservation measures (Attachment B) for the UPD in Utah to address potential conflicts between GRSG and UPD management. The 2025 RMPA will not change two of the three sets of management directions—each associated with specific project types—that prompted the need for the formal consultation in 2015. The third set of 2015 management directions addressed rights-of-way (ROW) management; the 2025 proposal will provide additional protections for GRSG and sagebrush habitats in ROWs by changing most of the areas of overlap (PHMA) from *avoidance* for new ROWs, to *exclusion*, which may reduce the threat of habitat modification for both UPD and GRSG. In the 2025 RMPA, BLM is committing to comply with the conservation measures in full and will conduct site-specific Section 7(a)(2) consultations for actions that may affect UPD. The BLM will continue to implement other measures to reduce impact to UPD from their key threats.

Conclusion

The BLM's programmatic action implements a program designed to enhance GRSG conservation through the amendment of existing RMPs in 8 states by implementing changes in management direction for 10 different allocative directions. Prior to the implementation of changes in management direction at the RMP level, BLM field offices will use the Service's Information for Planning and Consultation website (https://ipac.ecosphere.fws.gov/) to get the

most up-to-date species and critical habitat list for their project area. If BLM makes a "may affect" determination for listed species or critical habitats, BLM will initiate consultation with the Service. Consultation will include a site-specific analysis of potential effects to listed species or critical habitat from proposed actions associated with changes in management direction. During local level consultations, the BLM will be able to determine more specifically which species might be impacted by the proposed changes in management direction, the nature and extent of potential impacts, and if additional conservation measures are needed to reduce potential adverse effects to these species. Additionally, BLM does not need to reinitiate at the programmatic level for newly proposed or listed species or critical habitat, as that will be done at the local (RMP) level.

Based on BLM's commitment to implement conservation measures identified in their original BA and its amendment, and the requirement for site-specific consultations prior to the implementation of any management direction changes, the Service concurs that the proposed action is not likely to adversely affect threatened or endangered species, proposed species, non-essential experimental populations or designated or proposed critical habitats under the jurisdiction of the Service. If any subsequent action falls outside of the proposed changes in management direction to benefit GRSG conservation, BLM should evaluate the potential need to initiate formal consultation on that particular action, as it would fall outside the scope of this programmatic consultation.

This concludes informal consultation on BLM's Greater Sage-grouse Rangewide Planning Changes to Proposed RMPA for Idaho, Montana/Dakotas, Nevada/California, Utah, and Wyoming document. In accordance with 50 CFR § 402.16, reinitiation of consultation is required and shall be requested by BLM or the Service where discretionary federal involvement or control over the action has been retained or is authorized by law and: (1) if new information reveals effects of the action that may affect listed species or critical habitat in a manner to an extent not previously considered; or (2) if the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this concurrence letter.

If you have any questions or require additional information, please contact Dawn Davis (dawn_davis@fws.gov) or John Hughes (john_hughes@fws.gov).

Attachment A: Species and Critical Habitat List
Attachment B: Utah prairie dog conservation measures

Attachment A. Listed Species and Critical Habitat Analyzed for the Bureau of Land Management's Greater Sage-grouse Rangewide Planning Changes to Proposed RMPA for Idaho, Montana/Dakotas, Nevada/California, Utah, and Wyoming document.

Species	Status[1]	Critical Habitat?	Determination
Mammals			
Black-footed ferret (*Mustela nigripes*)	E, EXPN	No	Not likely to adversely affect (E) Not likely to jeopardize (EXPN)
Canada lynx (*Lynx canadensis*)	T	Yes	Not likely to adversely affect
Gray wolf (*Canis lupus*)	E, EXPN	Not in action area	Not likely to adversely affect (E) Non-jeopardy (EXPN)
Grizzly bear (*Ursus arctos horribilis*)	T, EXPN	Yes	Not likely to adversely affect (T) Not likely to jeopardize (EXPN)
North American wolverine (*Gulo gulo luscus*)	T	No	Not likely to adversely affect
Northern long-eared bat (*Myotis septentrionalis*)	E	No	Not likely to adversely affect
Preble's meadow jumping mouse (*Zapus hudsonius prebei*)	T	Yes	Not likely to adversely affect
Tricolored bat (*Perimyotis subflavus*)	P, E	No	Not likely to adversely affect
Utah prairie dog (*Cynomys parvidens*)	T	No	Not likely to adversely affect
Birds			
California condor (*Gymnogyps californianus*)	E, EXPN	Yes	Not likely to adversely affect (E) Not likely to jeopardize (EXPN)
Mexican spotted owl (*Strix occidentalis lucida*)	T	No	Not likely to adversely affect
Piping plover (*Charadrius melodus*)	T	Yes	Not likely to adversely affect
Rufa red knot (*Calidris canutus rufa*)	T	Yes	Not likely to adversely affect
Southwestern willow flycatcher (*Empidonax trailii extimus*)	E	Yes	Not likely to adversely affect
Whooping crane (*Grus americanus*)	E, EXPN	Yes	Not likely to adversely affect (E) Not likely to jeopardize (EXPN)
Western yellow-billed cuckoo (Western DPS; *Coccyzus americanus*)	T	Yes	Not likely to adversely affect
Reptiles			
Northwestern pond turtle (*Actinemys marmorata*)	P, T	No	Not likely to adversely affect
Insects			
Carson wandering skipper (*Pseudocopaeodese unus obscurus*)	T	No	Not likely to adversely affect
Regal fritillary (*Speyeria idalia*)	P, T	No	Not likely to adversely affect

[1] E – Endangered, T – Threatened, P – Proposed, EXPN – Experimental, Non-essential

Species	Status[1]	Critical Habitat?	Determination
Silverspot (*Speyeria nokomis nokomis*)	T	No	Not likely to adversely affect
Mollusks/Snails			
Banbury Springs limpet (*Idaholanx festi*)	E	No	Not likely to adversely affect
Bruneau hot springsnail (*Pyrgulopsis bruneauensis*)	E	No	Not likely to adversely affect
Snake River Physa snail (*Physa natricina*)	E	No	Not likely to adversely affect
Amphibians			
Dixie Valley toad (*Anaxyrus williamsi*)	E	Yes	Not likely to adversely affect
Wyoming toad (*Bufo baxteri*)	E	No	Not likely to adversely affect
Fish			
Big springs spinedace (*Lepidomena milliispinis*)	T	Yes	Not likely to adversely affect
Bonytail (*Gila elegans*)	E	Yes	Not likely to adversely affect
Bull trout (*Salvelinus confluentus*)	T	Yes	Not likely to adversely affect
Chinook salmon (Snake River spring/summer run; *Onorhynchus tshawytsha*)	T	Yes	Not likely to adversely affect
Chinook salmon (Snake River fall run; *Onorhynchus tshawytsha*)	T	Yes	Not likely to adversely affect
Clover Valley speckled dace (*Rhinichthyus osculus oligoporus*)	E	No	Not likely to adversely affect
Colorado pikeminnow (*Ptychocheilus lucius*)	E	Yes	Not likely to adversely affect
Cui-ui (*Chasmistes cujus*)	E	No	Not likely to adversely affect
Desert dace (*Eremichthys across*)	T	Yes	Not likely to adversely affect
Greenback cutthroat trout (*Onchorhynchus clarki ssp. Stomais*)	T	No	Not likely to adversely affect
Hiko White River springfish (*Crenichthys baileyi grandis*)	E	Yes	Not likely to adversely affect
Humpback chub (*Gila cypha*)	T	Yes	Not likely to adversely affect
Hutton tui chub (*Gila bicolor*)	E	No	Not likely to adversely affect
Independence Valley speckled dace (*Rhinichtys osculus*)	E	No	Not likely to adversely affect
Kendall warm springs dace (*Rhinichyts osculus thermalis*)	E	No	Not likely to adversely affect
Lahontan cutthroat trout (*Onorhynchochos clarkia henshawi*)	T	No	Not likely to adversely affect
Lost River sucker (*Deltistes luxatus*)	E	Yes	Not likely to adversely affect

[1] E – Endangered, T – Threatened, P – Proposed, EXPN – Experimental, Non-essential

Species	Status[1]	Critical Habitat?	Determination
Pahranagat roundtail chub (*Gila robusta jordani*)	E	No	Not likely to adversely affect
Pahrump poolfish (*Empetrichthys latos*)	E	No	Not likely to adversely affect
Pallid sturgeon (*Scaphirhynchus albus*)	E	No	Not likely to adversely affect
Railroad Valley springfish (*Crenichthys nevada*)	T	Yes	Not likely to adversely affect
Razorback sucker (*Xyrauchen texanus*)	E	Yes	Not likely to adversely affect
Shortnose sucker (*Chasmistes breviirostris*)	E	Yes	Not likely to adversely affect
Warner sucker (*Catostomus warnerensis*)	T	Yes	Not likely to adversely affect
White River spinedace (*Lepidomena albivalis*)	E	Yes	Not likely to adversely affect
Whiteriver springfish (*Crenichtys baileyi baileyi*)	E	Yes	Not likely to adversely affect
Plants			
Autumn buttercup (*Ranunculus aestivalis acriformis*)	E	No	Not likely to adversely affect
Barneby reed-mustard (*Schoenocrambe barnebyi*)	E	No	Not likely to adversely affect
Blowout penstemon (*Penstemon haydenii*)	E	No	Not likely to adversely affect
Clay phacelia (*Phacelia argillacea*)	E	No	Not likely to adversely affect
Clay reed-mustard (*Schoenocrambe argillacea*)	T	No	Not likely to adversely affect
Desert yellowhead (*Yermo xanthocephalus*)	T	Yes	Not likely to adversely affect
Heliotrope milk-vetch (*Astragalus montii*)	T	Yes	Not likely to adversely affect
Howell's spectacular thelypody (*Thelypodium howelli ssp. spectabillis*)	T	No	Not likely to adversely affect
Jones cycladenia (*Cycladenia humilis var. jonesii*)	T	No	Not likely to adversely affect
Kodachrome bladderpod (*Lesquerella tumulosa*)	E	No	Not likely to adversely affect
Last chance townsendia (*Townsendia aprica*)	T	No	Not likely to adversely affect
San Rafael cactus (*Pediocactusdes depainii*)	E	No	Not likely to adversely affect
Shrubby reed-mustard (*Schoenocrambe suffrutescens*)	E	Yes	Not likely to adversely affect
Slender Orcutt grass (*Orcuttia tenuis*)	T	Yes	Not likely to adversely affect
Slickspot peppergrass (*Lepidium papilliferum*)	T	Yes	Not likely to adversely affect

[1] E – Endangered, T – Threatened, P – Proposed, EXPN – Experimental, Non-essential

Species	Status[1]	Critical Habitat?	Determination
Uinta Basin hookless cactus (*Sclerocactus wetlandicus*)	T	No	Not likely to adversely affect
Ute ladies'-tresses (*Spiranthes diluvialis*)	T	No	Not likely to adversely affect
Webber ivesia (*Ivesia webberi*)	T	Yes	Not likely to adversely affect
Western prairie fringed orchid (*Platanthera praeclara*)	T	No	Not likely to adversely affect
Wright fishhook cactus (*Sclerocactus wrightiae*)	E	No	Not likely to adversely affect
Whitebark pine (*Pinus albicaulis*)	T	No	Not likely to adversely affect

[1] E – Endangered, T – Threatened, P – Proposed, EXPN – Experimental, Non-essential

Attachment B. Utah Prairie Dog (*Cynomys parvidens*) Conservation Measures to be Implemented on BLM Lands in Conjunction with the 2025 GRSG RMPA.

In their 2015 Biological Assessment (BA; BLM 2015), the BLM committed to implementing the following conservation measures when planning and implementing management actions in areas where greater sage-grouse and Utah prairie dog habitat overlap. These conservation measures will continue to be implemented under the 2025 GRSG RMPA:

- Under the authority of BLM laws, regulations, and policies, where Utah prairie dog habitat overlaps with greater sage-grouse habitats, it is the intent of these land use plan amendments to co-manage for the benefit of both species. For example, when applying various management actions and objectives that are applicable specifically to greater sage-grouse but could affect Utah prairie dog habitat, landscapes would be managed for both species. Examples of some of these BLM management actions and objectives are included in over-arching management in GRSG habitat (e.g., Objective GRSG-3, MA-GRSG-4), vegetation management (e.g., Objective VEG-1, MA-VEG-1), and fire management (e.g., MA-FIRE-3, MA-FIRE-4).

- The BLM commits to include co-management language that will help guide planning and implementing management actions in areas where greater sage-grouse and Utah prairie dog habitat overlaps. This co-management language is included in the following Management Actions and Objectives in the final BA:

    - Objective GRSG-2
    - Objective GRSG-4
    - MA-GRSG-3
    - MA-GRSG-5
    - MA-VEG-4

    Co-management language will be included in the following Management Actions and Objectives in the BLM's Record of Decision:

    - Objective GRSG-3
    - MA-GRSG-4
    - MA-GRSG-6
    - Objective VEG-1
    - MA-VEG-1
    - MA-FIRE-3
    - MA-FIRE-4

- There is a suite of project-level conservation measures that will minimize impacts to Utah prairie dogs that are already in place in existing biological assessments, plans, policies, and regulations (see Attachment E *in* the BA). The following conservation measure from the BA for this proposed action describes this as follows:

- The original biological assessment impacts analysis included conservation measures from various existing land use plans and conservation measures from existing, site-specific projects, as well as their associated Section 7 consultations for Utah prairie dog. The conservation measures from the existing land use plans and land use plan Section 7 consultations have been more clearly identified in Attachment E of the BA. The conservation measures from the existing site-specific projects were illustrative of the types of site-specific conservation measures that may be used during implementation of Utah prairie dog conservation actions.

Literature Cited

Bureau of Land Management. 2015. Biological Assessment for the Utah Greater Sage-Grouse Land Use Plan Amendment and Final Environmental Impact Statement. May 20, 2015. 186 pp.

Appendix 9

BLM Adaptive Management Process

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Appendix 9. BLM Adaptive Management Process

The BLM will implement GRSG adaptive management in coordination with existing or future state-level interagency adaptive management teams and use the best available scientific information, including GRSG population status as determined by State GRSG authorities. Composed of knowledgeable BLM and State GRSG authorities and working groups, interagency adaptive management teams will provide GRSG habitat management information to the BLM authorized officers. The BLM will work with the appropriate agencies to inform and implement the most recent State adaptive management processes, consistent with the framework outlined in this appendix.[1]

Key elements of the GRSG adaptive management process set forth herein include (1) monitoring habitat conditions and population status (e.g., abundance and trends) analysis units, (2) establishing and routinely assessing thresholds for habitat conditions and population status indicating unanticipated GRSG habitat impacts, (3) conducting causal factor analyses (CFA) of thresholds that have been met, and (4) employing management decisions and actions in response to thresholds and CFAs.

9.1 Analysis Units

To accurately inform adaptive management, the status of GRSG habitat and populations will be monitored and thresholds assessed at a scientifically appropriate scale and within comparable spatial analysis units. The BLM will specify the spatial analysis unit, in coordination with State GRSG authorities, applied when implementing adaptive management. Some threshold assessments, CFAs, and adaptive management responses may need to extend beyond individual spatial analysis units to address large-scale unanticipated negative impacts to GRSG habitat.

9.2 Habitat Thresholds

Habitat Threshold Activation – The BLM's adaptive management process specifies habitat thresholds for negative changes to GRSG habitat condition. The BLM will routinely assess the following habitat thresholds, which may be revised by the BLM as warranted through appropriate additional decision-making with newly available scientific information, and will document data and rationale for activated thresholds:

1. A soft habitat threshold will be activated when more than 5% of the suitable habitat (as defined as areas capable of supporting sagebrush) of Priority Habitat Management Areas (PHMA) spatial analysis unit is lost during a given year (including losses to wildfire). Percent sagebrush loss will be calculated only on PHMA portions of a spatial analysis unit that may also contain other HMA designations (e.g., GHMA). Baselines for calculating sagebrush loss will be specified by the sagebrush base layer delineated with the most recent LandFire data (detailed in Appendix 3) available at publication of the Approved RMPA and ROD.
2. A hard habitat threshold will be activated when suitable habitat, as defined above, in PHMA within a spatial analysis unit decreases below 65% (Aldridge et al., 2008; Connelly et al., 2000).

[1] The Federal Land Policy and Management Act (FLPMA) requires the BLM, to "resolv[e], to the extent practical, inconsistencies between Federal and non-Federal Government plans," and achieve consistency with State and local plans to the maximum extent that the BLM finds to be consistent with the laws governing public lands. 43 USC 1712(c)(9). See also 43 CFR 1610.3-1.

3. A hard habitat threshold will also be activated when a soft habitat threshold occurs as calculated from baseline in 4 consecutive years (i.e., >5% decline in each of 4 consecutive years).
4. All habitat thresholds activated will be verified through ground-truthing as described in the "Causal Factor Analysis (CFA)" section below.

Habitat Threshold Deactivation – Habitat threshold deactivation will be determined by the BLM in coordination with State GRSG authorities, and state-level interagency adaptive management teams where occurring. Data and rationale for deactivating a threshold will be documented. Deactivating habitat thresholds will correspond to the following criteria:

1. Soft and hard habitat thresholds can be deactivated if the quantity of sagebrush vegetation communities within the affected spatial analysis unit recover to sagebrush conditions and/or habitat function existing prior to a habitat threshold being activated.
2. If a spatial analysis unit cannot be restored to original sagebrush conditions and/or habitat function due to ecological or disturbance limitations (e.g., intense wildfire-killed soil microfauna, dense anthropogenic activities, etc.), restoration and/or habitat enhancement in adjacent spatial analysis units can be considered to increase GRSG abundance in those areas. In these situations, habitat threshold deactivation occurs when regional GRSG abundance recovers as determined by State GRSG authorities to levels present prior to the threshold being activated.
3. If enhancing habitats in adjacent spatial analysis units does not deactivate a threshold, further assessment may be necessary to determine if the area in which the habitat threshold occurred should still be considered GRSG habitat.

9.3 POPULATION THRESHOLDS

Population Threshold Activation – Although BLM does not manage GRSG, GRSG population status can provide valuable information about habitat conditions on BLM-administered lands. In addition to habitat thresholds, the BLM's adaptive management process specifies population thresholds as indicators of potential habitat condition changes and unanticipated negative impacts to GRSG. States lead GRSG population data collection and determination of population status, often in coordination with state-level interagency adaptive management teams. Therefore, threshold activation will be determined in coordination among BLM, State GRSG authorities, and state-level interagency adaptive management teams where occurring. In addition, State GRSG authorities should alert the BLM any time an internal assessment identifies population status concerns warranting activation of population thresholds. The BLM will document data and rationale for activating population thresholds, including population status input and recommendations from State GRSG authorities.

Population Thresholds – The BLM will review population trend assessments provided by the States, annual Hierarchical Population Monitoring Framework (HPMF) results (when available, Coates et al. 2021 and subsequent updates or revisions), and other available scientific information to inform potential habitat concerns in PHMA. State GRSG authorities receive HPMF results in advance of public releases. Therefore, State GRSG authorities can provide the BLM with early alerts of both soft and hard population thresholds that may need a CFA (note: the BLM does not receive lek specific information from the HPMF).

To the extent the HPMF's Targeted Annual Warning System (TAWS) is consistent with State adaptive management processes and the best available science, and therefore utilized by the BLM, activation of the HPMF thresholds correspond to the following definitions:

1. Activation of a soft population threshold is equivalent to a TAWS "watch," which is defined as 2 consecutive years of population decline within a neighborhood cluster that is either different or more rapid than the associated climate cluster.
2. Activation of a hard population threshold is equivalent to a TAWS "warning," which is defined as 2 out of 3 (fast) or 3 out of 4 (slow) consecutive years of population decline within a neighborhood cluster that is either different or more rapid than the associated climate cluster.

HPMF Population Threshold Deactivation – Where applied, HPMF population threshold deactivation will be determined by the BLM in coordination with State GRSG authorities, and state-level interagency adaptive management teams where occurring. The BLM will document data and rationale for deactivating a population threshold. To the extent TAWS is consistent with State adaptive management processes and the best available science, and therefore utilized by the BLM, deactivating HPMF population thresholds will correspond to the following criteria:

1. The affected population's trend is no longer a "watch" or "warning" within a neighborhood cluster and realigns with the climate cluster's trend for 3 consecutive years; or
2. The affected population's abundance or growth rate are sufficient for recovery as determined by and with concurrence of State GRSG authorities; or
3. The BLM and State GRSG authorities determine threshold results were in error.

Population Threshold Verification – The BLM and State GRSG authorities will jointly verify each activated population threshold, preferably within 60 days, to assess if habitat factors may be influencing the suspected population threshold. If BLM and State GRSG authorities agree a threshold was activated in error, the BLM will document information substantiating the error and threshold deactivation as may be warranted. In the event of a disagreement, BLM and State GRSG authorities will coordinate to resolve the disagreement by further assessing and documenting potential threshold analysis errors. If a disagreement persists, the appropriate BLM State Director will collaborate with BLM State and National GRSG coordinators and local BLM field biologist, as needed, to evaluate threshold results and determine if a CFA is prudent. The BLM State Director will advise the State GRSG authorities of BLM's threshold verification conclusion.

9.4 CAUSAL FACTOR ANALYSIS (CFAS)

CFA Teams – CFA teams will identify factors causing thresholds to be activated and recommend adaptive management responses to deactivate thresholds. CFA team composition should minimally include the local BLM biologist, BLM State Sage-grouse Lead, and at least one representative from the State GRSG authorities. Additional subject matter experts, stakeholders with local knowledge, and other affected parties may be included on CFA teams as appropriate for site-specific analyses or as consistent with existing CFA team structures.

Formal CFA – The BLM, in coordination with the CFA team, will perform a CFA and prepare a report for each activated and verified habitat and population threshold. Formal CFAs will be performed for activated thresholds with one or more potential causal factors that are not obvious (in contrast to the Rapid Assessment CFA described below). CFAs will identify factors causing thresholds to be activated and recommend adaptive management responses to deactivate thresholds. Substantive disagreements about

causal factors will be noted in the CFA report along with the basis of the disagreements. CFAs and reports will be completed within 12 months from the threshold being activated. BLM will prepare a CFA report even if no causal factors are identified. Upon completion, CFA reports will be submitted to the appropriate local BLM manager, BLM State Sage-grouse Lead, BLM National GRSG Coordinator, State GRSG authorities, and CFA team. CFA reports will include, but not be limited to, the following information about the activated threshold and affected spatial analysis unit(s):

1. Descriptions of existing land uses.
2. Landownership patterns.
3. GRSG population trends.
4. Habitat conditions and trends.
5. Factor(s) causing the habitat and/or population declines and threshold activation.
6. Recommended management actions to address causal factors.
7. Data and expertise used to reach CFA conclusions.

Rapid Assessment CFA – A rapid assessment CFA can be performed instead of a formal CFA for activated thresholds with obvious causal factors (e.g., large wildfire or other discrete events). Rapid assessments may be conducted by the BLM or appropriate State GRSG authorities, or both, but results should be confirmed by all parties. Causal factors identified during a rapid assessment will be documented and reported to the appropriate local BLM manager, BLM State Sage-grouse Lead, BLM National GRSG Coordinator, State GRSG authorities, and CFA team. If a rapid assessment identifies no obvious causal factor, a formal CFA will be completed within 12 months of the threshold being activated.

9.5 PHMA ADAPTIVE MANAGEMENT RESPONSES

Threshold Responses – The BLM will implement adaptive management responses to address factors causing habitat or population threshold activation as specified in CFA reports and rapid assessment documentation. In accordance with applicable law and prior existing valid rights, the BLM may modify authorizations of existing activities and defer authorization of proposed new activities to avoid, minimize, or otherwise mitigate GRSG impacts on BLM-administered lands from causal factors. Through project-level analysis conducted under the National Environmental Policy Act (NEPA), the BLM will evaluate if a proposed new activity could contribute to an activated threshold or cause a future threshold activation. Implementing habitat improvement projects should also be considered if likely to reverse thresholds. The BLM will coordinate adaptive management responses with State GRSG authorities and state-level interagency adaptive management teams where occurring.

Spatial Scale and Monitoring – The BLM will target adaptive management responses at the spatial scale and within the spatial analysis unit at which a threshold is activated. However, a CFA team may recommend expanding the spatial extent of adaptive management analyses and recommended responses beyond individually activated spatial analysis units to address large-scale unanticipated negative impacts to GRSG habitat. Monitoring of the affected habitat or population (or both if appropriate) will be necessary to assess the efficacy of adaptive management responses for deactivating thresholds.

Non-BLM administered lands – CFAs and corresponding adaptive management responses should consider if threshold activation in PHMA is due to actions on non-BLM administered lands. If a threshold is activated from actions on adjacent non-BLM administered lands, the BLM can consider authorizing proposed new activities that will not negatively impact GRSG habitat or populations on BLM-administered lands or

contribute to indirect or cumulative impacts. The BLM may also consider additional adaptive management responses as needed to prevent further GRSG habitat impacts on BLM-administered lands. The BLM will document adaptive management determinations regarding non-BLM administered lands to address a threshold that has been activated due to activities that occurred on non-BLM-administered lands.

Thresholds – The BLM can consider authorizing proposed new activities during a CFA if the activities will cause no GRSG mortality or direct loss or degradation of occupied GRSG habitat. After completing the CFA, the BLM can consider activity authorizations and reauthorizations if similar activities were neither causal factors nor contributing factors of the activated threshold. Project-level NEPA will evaluate if authorizing a proposed new activity could cause a threshold to be sustained or reactivated.

Threshold Modification – If supported by local data, a CFA team can review and recommend modifying the activated threshold level, and corresponding adaptive management responses, from (1) soft-to-hard or (2) hard-to-soft. Threshold modifications must be supported by data and detailed in a written report that is approved by the BLM authorized officer in consultation with State GRSG authorities and local CFA team.

Exceptions to Threshold Responses – The BLM will coordinate with permittees and project proponents to reduce potential GRSG impacts from the following exceptions to adaptive management responses for activated thresholds:

1. Renewal of existing authorized activities that require an authorization if:
    a. The activity is scheduled within 60 days of when a threshold is identified and activated, and
    b. The permittee or project proponent can demonstrate significant negative economic impacts (e.g., documented loss of income equivalent to the income potential of the activity), and
    c. The renewal can only be considered if it does not result in known negative impacts to GRSG habitat or populations.
2. Activities essential for human health and safety in a current or likely catastrophic event (e.g., repair of dams, emergency vehicle access, emergency utility repairs). Note: routine maintenance and operations of electric utility ROWs may continue as outlined in 43 CFR 2801 and authorized ROW grants.
3. Emergency Stabilization and Rehabilitation activities for post-wildfire restoration.
4. A livestock grazing permit or lease to extend the current livestock grazing practice may be renewed, but only for the period/duration needed to complete the CFA. If livestock grazing is not determined as a causal factor to an activated threshold, the subsequent livestock grazing permit or lease renewal can proceed normally. If livestock grazing is identified as a causal factor to an activated threshold, the terms and conditions of the subsequent livestock grazing permit or lease will need to be examined through NEPA and potentially modified to reduce or eliminate negative habitat impacts.
5. Continuing the terms and conditions for livestock grazing when a permit or lease has expired or was terminated due to a livestock grazing preference transfer in accordance with Section 402(c)(2) of the Federal Land Policy and Management Act (FLPMA).

Inconclusive CFAs – If a CFA identifies no causal factor for an activated threshold, the BLM may consider additional project-level restrictions on existing or new activity authorizations within the spatial analysis unit of the activated threshold. The BLM will implement activity restrictions in coordination with permit holders and State GRSG authorities and in accordance with applicable law and prior existing valid rights. The BLM will document the biological rationale for restrictions. New authorizations must disclose that a threshold

has been activated and consider potential cumulative impacts on GRSG habitat and State-managed populations. In addition to activity restrictions, the BLM should implement habitat improvement projects to promote threshold deactivation. The BLM should monitor habitat conditions associated with inconclusive CFAs and document new information as a CFA report addendum or in annual adaptive management reports. CFAs not completed within 12 months will not be considered inconclusive and should be prioritized for completion.

Adaptive Management Response Removal – After corresponding thresholds are deactivated, the BLM will remove activity management actions, adjustments, or stipulations implemented as adaptive management responses on authorized activities, coordinated with permittees. BLM will also consider authorizing new proposed activities within associated spatial analysis units after thresholds are deactivated.

9.6 HABITAT THRESHOLDS DUE TO WILDFIRE

If wildfire causes habitat threshold activation, the BLM will coordinate with State GRSG authorities and assess actual wildfire impacts to GRSG habitat within the wildfire perimeter, including the extent of lost habitat, burn severity, and sagebrush mortality, except as defined in the Exceptions to Threshold Response above. The BLM will perform post-wildfire GRSG habitat assessments, which can include an initial rapid assessment CFA, in addition to a BLM Emergency Stabilization and Rehabilitation review that might also occur. If the GRSG habitat assessment concludes that wildfire severity permanently precludes habitat restoration, the BLM may perform additional assessments to determine if the wildfire-affected area should not be considered GRSG habitat. Post-wildfire GRSG habitat assessments and associated determinations will be documented and reported to the BLM State Director, BLM State Office Sage-grouse Lead, National BLM GRSG Coordinator, and State GRSG authorities.

The BLM will complete post-wildfire GRSG habitat assessments before the next growing season following the fire. Until a post-wildfire GRSG habitat assessment is completed, the BLM will authorize no new activities that could cause more GRSG habitat loss or degradation within PHMA portions of the wildfire-affected spatial analysis unit(s) where the habitat threshold is activated. The threshold will be deactivated if the assessment concludes that wildfire did not reduce the availability of habitat services (i.e., food, cover, water, and connectivity) necessary to support pre-wildfire GRSG abundance. State GRSG authorities will determine pre-wildfire GRSG abundance and participate in the assessment of wildfire effects on GRSG abundance and habitat services. If pre-wildfire GRSG abundances are not supported, the BLM may defer authorizing new activities in accordance with applicable law and prior existing valid rights until the threshold is deactivated and the wildfire-affected area again supports pre-wildfire GRSG abundances. The BLM may consider authorizing new activities prior to threshold deactivation only if the activity will neither directly nor indirectly impact the wildfire-affected GRSG populations, as determined in coordination with State GRSG authorities.

Appendix 10

Summary of Public Comments on the Proposed Changes Between Proposed RMPA and ROD

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Appendix 10. Summary of Public Comments on the Proposed Changes Between Proposed RMPA and ROD

Consistent with 43 CFR 1610.2(f)(5) and 1610.5-1(b), significant changes to the proposed management direction in the Proposed Resource Management Plan (RMP) Amendment were published for public comment on September 2, 2025, for a 30-day comment period, which ended on October 3, 2025. This was a narrow comment period focused specifically on five significant changes to management direction from what was published in the Proposed RMP Amendment on November 15, 2024. These changes included:

- Substantive edits to the adaptive management language in the Proposed RMPAs for Idaho, Montana/Dakotas, Nevada/California, Utah, and Wyoming to better align with state policies and programs to manage sage-grouse populations.
- Removal of the designation for Priority Habitat Management Areas (PHMA) with limited exceptions as a distinct subset of PHMAs to improve consistency with state and local plans.
- Changing the seasonal habitat benchmark for perennial grass height during nesting/early brood rearing from a quantitative standard to a qualitative standard in the Nevada/California and Idaho Proposed RMPAs.
- Updating the habitat management area boundaries for the Utah Proposed RMPA to more closely align with the State of Utah Greater Sage-Grouse Conservation Plan (2019).
- Changing the allocation for major rights of way in general habitat management areas (GHMA) in the Nevada Proposed RMPA from avoidance to open to align more closely with how GHMA is managed in BLM California.

The BLM received approximately 170 unique, substantive comments on these changes. Those that are pertinent to the Nevada and California planning region are summarized below along with the BLM's responses.

10.1 Adaptive Management (General)

- **Comment Summary:** The BLM should update the RODs with language explaining how it will address inconsistencies between the adaptive management provisions in existing state plans and those described in the FEIS. The Proposed Changes document does not clarify how these inconsistencies will be resolved.

  Response: States have ownership over managing GRSG populations and therefore lead the collection of GRSG population monitoring data and determination of population status (e.g., increasing, decreasing, or stable). The States' population monitoring is important for informing effective GRSG habitat management on BLM-administered lands. The BLM coordinated extensively with the Western Governors' Association Sage-grouse Task Force (WGA SGTF) to draft the adaptive management approach in the proposed changes document, which is adopted in the Approved Amendment. Every state in the Task Force supports this management approach. Further, the BLM's adaptive management approach identifies the need for close coordination with states in implementing this framework, including the development of interagency teams to utilize best

available science to coordinate with state authorities on analysis units, population status, thresholds, causal factors, and responses. During implementation, the BLM encourages states to develop MOUs with their BLM state offices to address any potential points of concern and ensure consistency between State and BLM-managed lands.

- **Comment Summary:** Commenters provided specific adaptive management recommendations in tracked-change format within their letters.

  Response: The BLM carefully considered the proposed edits to adaptive management language and adopted them as appropriate.

10.2 ADAPTIVE MANAGEMENT- HABITAT THRESHOLDS

- **Comment Summary:** The BLM should clarify how habitat thresholds will be deactivated and how habitat threshold activation due to wildfire is addressed.

  Response: Threshold deactivation is discussed in the adaptive management appendix, *Habitat Threshold Deactivation.* Habitat threshold activation due to wildfire is discussed in the adaptive management appendix, *Habitat Thresholds due to Wildfire*. During implementation, the BLM encourages states to develop MOUs with their BLM state offices to address implementation of this framework.

- **Comment Summary:** The BLM should consider routine and non-routine operations for utility operators when identifying threshold responses, as RODs do not have utility operations exemptions. RODs should include specific language that explicitly permits routine ROW maintenance, including service road access, as part of valid existing rights, regardless of threshold response status.

  Response: The BLM clarified in the adaptive management appendix, *Exceptions to Threshold Responses,* that ROW operations and routine maintenance may be an exception to threshold responses and will follow the regulations at 43 CFR 2801 and the terms of the ROW authorization.

10.3 ADAPTIVE MANAGEMENT- CAUSAL FACTOR ANALYSIS

- **Comment Summary:** Causal Factor Analysis has been misused to restrict other development activities, such as grazing allotments, and the Proposed Changes document fails to address this issue. Causal Factor Analysis should place greater emphasis on natural causes of habitat degradation, including predation and large wildfires. Commenters proposed specific text revisions in tracked-change format within their letters. (See Letter 149 from Eureka County, NV, and Letter 191 from Humboldt County, NV.)

  Response: The BLM coordinated extensively with the Western Governors' Association Sage-grouse Task Force (WGA SGTF) to draft the adaptive management approach in the proposed changes document, which is adopted in the Approved Amendment. The evaluation of causal factors includes consideration of how natural factors contribute to the degradation of sage-grouse habitat. As stated in the adaptive management appendix, *Causal Factor Analysis,* formal CFA reports will cover aspects such as habitat conditions, factors causing declines and threshold activation, and recommendations. In cases of large wildfires, a Rapid Assessment CFA can be prepared. Actions taken to implement the CFA recommendations by the BLM will require NEPA. In the case of grazing allotment based actions, the BLM will not take a management action related to grazing unless it is determined that grazing is the causal factor of the threshold being met. Grazing allotment renewal

is also established as one of the exceptions to threshold responses, and allotments may be renewed while a CFA is ongoing, which is clarified in the final adaptive management language. The evaluation of causal factors includes consideration of how natural factors contribute to the degradation of sage-grouse habitat. In addition, wildfire is further addressed in the adaptive management appendix, *Habitat Thresholds Due to Wildfire.*

- **Comment Summary:** When conducting Causal Factor Analysis, other sagebrush-obligate species, such as mule deer and pygmy rabbits, should also be considered as potential indicator species for sagebrush biomes.

  Response: The BLM will consider the best available information in completing a causal factor analysis. As stated in the adaptive management appendix, *Causal Factor Analysis,* the BLM will consider habitat conditions and trends, which may include all sagebrush-dependent species.

10.4 ADAPTIVE MANAGEMENT- TARGETED EARLY WARNING SYSTEM (TAWS) AND POPULATION THRESHOLDS

- **Comment Summary:** TAWS is an outdated system that is error-prone and fails to deliver adequate management outcomes. State agencies are better equipped to handle adaptive management and monitoring. The BLM should prioritize supporting state agencies and fostering greater collaboration between the BLM and state agencies.

  Response: TAWS is currently the best available science, developed in close coordination with all state agency biologists and the Western Association of Fish and Wildlife Agencies. The BLM will continue to evaluate the best available science when making management decisions for sage-grouse habitat. The BLM coordinated extensively with the Western Governors' Association Sage-grouse Task Force (WGA SGTF) to draft the adaptive management approach in the proposed changes document, which is adopted in the Approved Amendment. The revised Adaptive Management approach supports strong collaboration with state agencies and provides for verification of thresholds, see *Population Threshold Verification*.

- **Comment Summary:** Conversely, the BLM already employs adaptive management methods, including TAWS, which are informed by state agency data. However, the Proposed Changes document indicates that states may be granted authority to override BLM management actions, which would conflict with FLPMA.

  Response: The BLM is committed to close coordination with states in making management decisions for sage-grouse habitat and ensuring that information about sage-grouse populations is accurate. This does not mean that states may override the BLM's management actions on BLM-administered lands. The Adaptive Management Action states, "BLM will coordinate with State GRSG authorities regarding management decisions made in response to adaptive management thresholds and subsequent causal factor analyses and will make decisions for the management of BLM managed surface lands and mineral estate." This is further explained in the Adaptive Management Responses Section, specifically it explains the BLM will implement adaptive management responses.

- **Comment Summary:** The BLM should clarify how population thresholds are addressed.

  Response: The adaptive management appendix addresses population thresholds.

10.5 ADAPTIVE MANAGEMENT- STATE POLICIES AND PROGRAMS

- **Comment Summary:** The BLM should adopt the Nevada adaptive management process for the Nevada/California RMP amendment. The BLM should adopt state specific policies used by the State of Nevada, including input from Sagebrush Ecosystem Technical Team (SETT), and following the Nevada's Conservation Credit System (CCS). Nevada commenters expressed concern that the BLM had adopted Wyoming's Adaptive Management Approach, while subjecting Nevada to additional regulations, despite Nevada having an equally robust GRSG conservation plan. The BLM should develop a method to resolve discrepancies between state level plans.

  Response: In NV/CA planning region, there will be an implementation-level MOU with the State of NV to address any potential inconsistencies between the State of Nevada's adaptive management plan and the BLM's adaptive management framework. This language has been added to the Approved RMP Amendment Adaptive Management section and the Changes and Clarifications section of the ROD.

- **Comment Summary:** The BLM should establish a process which would resolve discrepancies between state level plans that are not aligned with BLM's management actions, and the Proposed Changes document does not address these shortcomings.

  Response: During implementation, the BLM encourages states to develop MOUs with their BLM state offices to address any potential points of concern and ensure consistency between State and BLM-managed lands. Key elements of the BLM adaptive management approach are detailed in the appendix and can be used to assess the applicability of state level plans in meeting BLM management actions,

- **Comment Summary:** Adaptive Management relies heavily on cooperation between state agencies and BLM. BLM should support state agencies and maintain a working and cooperative relationship and ensure that state-led processes are fully integrated into federal decision-making.

  Response: States have ownership over managing GRSG populations and therefore lead the collection of GRSG population monitoring data and determination of population status (e.g., increasing, decreasing, or stable). The States' population monitoring is important for informing effective GRSG habitat management on BLM-administered lands. The BLM is committed to close coordination with states in making management decisions for sage-grouse habitat. Recall that the overall goal of this plan amendment effort as well as many objectives and management actions are explicit in about "coordination and cooperation with state wildlife agencies and appropriate state authorities." During implementation, the BLM encourages states to develop MOUs with their BLM state offices to address any potential points of concern and ensure consistency between State and BLM-managed lands.

10.6 ADEQUACY OF NEPA AND LUP COMPLIANCE

- **Comment Summary:** The BLM did not adhere to agency guidelines, NEPA requirements, or other federal laws when developing the FEIS or during the protest resolution process. The Proposed Changes document does not adequately address these shortcomings.

  Response: The BLM has complied with the requirements of NEPA, FLPMA, and its land use planning regulations in developing the approved RMP amendments.

- **Comment Summary:** The Proposed Changes document introduces significant changes to the FEIS that fall outside the scope of the original FEIS analysis and therefore require additional NEPA review. Specifically, the BLM failed to analyze the adaptive management approach in the proposed changes document and that adaptive management approach fails to provide that project level NEPA for changes in management direction will occur. Furthermore, the limited scope of the Proposed Changes comment period did not provide an opportunity to seek clarification on these discrepancies.

  Response: The BLM has carefully reviewed each of the proposed changes to determine if they would result in significant effects outside the range of effects analyzed in the Proposed RMPA/Final Environmental Impact Statement (EIS). The BLM has determined that the analysis described in the Proposed RMPA/Final EIS is inclusive of the effects that would occur because of these changed management actions and supplemental analysis under the National Environmental Policy Act is not needed. Specifically, the proposed adaptive management approach for Idaho, Montana/Dakotas, Nevada/ California and Utah is within the spectrum of alternatives analyzed in the FEIS. The BLM analyzed the proposed adaptive management approach for WY in Alternative 2 of the FEIS. The BLM will also comply with NEPA as appropriate during implementation of the adaptive management approach, as explained in the Adaptive Management Response Section of the Adaptive Management Appendix.

  Moreover, consistent with the BLM's planning regulations (43 CFR 1610.5-1; 43 CFR 1610.2) the BLM provided a 30-day public comment period for the public to comment on significant changes to the proposed amendment that was previously issued in November 2024. In the proposed changes document available to the public, the BLM identified changes and provided an explanation for the changes- including a description of the governor's concerns with the proposed adaptive management approach. The BLM also provided specific changes in management direction associated with the elimination of PHMA with limited exceptions in Table 1 and provided state-specific maps identifying areas where PHMA with limited exceptions is removed to allow the public to compare the proposed changes to those issued in the November 2024 proposed amendment.

10.7 PRIORITY HABITAT MANAGEMENT AREA AND AREAS OF CRITICAL ENVIRONMENTAL CONCERN

- **Comment Summary:** PHMA with Limited Exceptions was developed as a mechanism to provide protection for GRSG without formally designating ACECs. By removing PHMA with Limited Exceptions, the BLM loses the ability to designate protected habitat for GRSG. Therefore, the BLM should consider either designating additional ACECs or maintaining PHMA with Limited Exceptions.

  Response: The BLM considered areas for potential designation as Areas of Critical Environmental Concern (ACECs) for GRSG habitat in this land use planning process. These areas were first identified through both external nominations and internal rangewide and state-specific review processes that were subsequently thoroughly evaluated by BLM to determine if they met the ACEC relevance and importance criteria identified in 43 CFR 1610.7-2 (refer to Appendix 5, Areas of Critical Environmental Concern for Greater Sage-Grouse Habitat, in the Final EIS). Specifically, in the EIS for this RMP Amendment, in compliance with 43 CFR 1617.7-2 and ACEC policy, the BLM has evaluated the area found to have relevance and importance and proposed the area for ACEC designation in the Alternatives. The BLM has also analyzed the effects of the management direction to the potential ACEC area under all of the alternatives, including the Proposed RMP Amendment.

Following the Proposed RMP Amendment, several states informed the BLM that they found the identification of and additional protections in the PHMA with limited exceptions to be unnecessary, potentially inconsistent with state and local plans, policies, or programs (including because those states thought there could be confusion as to whether there would be two or three habitat management area designations), and a primary reason the states could not support the Proposed RMP Amendment. In consideration of the states' concerns related to the PHMA areas with limited exceptions, and in order to allow the BLM and the states to move forward together, the BLM has removed the PHMA with limited exception areas in the Approved RMP Amendment.

The BLM evaluated areas proposed for designation as ACECs, and as explained in the ROD, determined the management direction in the approved amendment will provide protection to the relevant and important values of the potential ACEC area thus designation as an ACEC is not necessary.

- **Comment Summary:** The BLM should categorically exclude both wind and utility-scale solar development from PHMA as described in PHMA with limited exceptions, without relying on micro-siting as a form of mitigation. Distributed or co-located solar projects could be considered in non-habitat areas; however, utility-scale projects are incompatible with sage-grouse conservation in core habitats.

  Response: The BLM has carefully considered how to balance multiple uses in the planning area. Utility scale wind and solar are excluded from PHMA, with narrow exception criteria designed to protect sage-grouse habitat from direct and indirect impacts.

10.8 NESTING HABITAT BENCHMARKS

- **Comment Summary:** The BLM should incorporate the following sentence into footnote No. 6: Assessments of suitable Nesting/Earling Brood Rearing seasonal habitat will collectively consider all applicable Table 4-1 indicators and benchmarks along with other relevant site conditions metrics including forage utilization (see Conway et al. 2025).

  Response: The footnote is further explanation on 'suitable nesting cover' and references two studies (i.e., Coates et al. 2017a, Dahlgren et al. 2019) that reported different heights by ecological site description and vegetation type (perennial grass, perennial forb, residual grass). These references, therefore, provide concrete examples on documented variation in perennial grass, perennial forb, and residual grass height. Perennial grass and forb heights are vegetation characteristics that sage-grouse select for nesting or are associated with increased nest success based on the scientific literature. Utilization itself is not a habitat indicator for sage-grouse because utilization can result in many different habitat condition outcomes, including the pre-grazing condition of the vegetation, and has not been shown in the literature to be a variable discernable by sage-grouse for nest selection or success. During rangeland health assessments utilization is considered when making a determination of meeting Land Health Standards.

- **Comment Summary:** The BLM should consider removing quantitative grass height indicators because these indicators are rigid, one-size-fits-all, and not adaptable to site-specific conditions. Instead, the BLM should rely on Conway et al.'s 2025 publication as justification for this change, rather than publications that support a quantitative indicator.

Response: The BLM relies on the best available science in determining suitable nesting habitat benchmarks for sage-grouse, including Conway et al. 2025. As stated in the approved RMP amendment, NV/CA use a qualitative standard.

- **Comment Summary:** Conversely, the quantitative grass height indicator should remain as the Nesting Habitat Benchmark because there is ample evidence and data supporting the positive correlation between vegetation height and nesting and brood success. Additionally, this quantitative benchmark already accounts for site-specific variability and complies with the existing habitat assessment framework and standards. The commenters also allege the BLM failed to evaluate the impacts in the EIS of the proposed change of the perennial grass height indicator to "suitable nesting cover," and that this change makes it unlikely that a minimum science-based guideline will be implemented for site-specific grazing authorizations.

  Response: In response to concerns raised by the Governor's consistency review about the use of best available science, BLM Nevada and California changed the benchmark for the perennial grass height indicator from a specific height to "Suitable nesting cover". "Adequate nesting cover" from Alternative 2 was analyzed in the FEIS but clarification was added that "Suitable nesting cover" would be based on best available science and that vegetation heights may differ by ecological site potential and vegetation type, as reported by several more recent studies (Coates et al. 2017a, Dahlgren et al. 2019). Furthermore, BLM acknowledged that benchmarks would continue to be updated with evolving science.

10.9 NV Change from Avoidance to Open

- **Comment Summary:** The Proposed Changes document does not adequately justify the changes to GHMA. Commenters assert that these changes are being made solely at the request of the state of Nevada, without any additional rationale. The proposed change to reclassify GHMA from Avoidance to Open is not supported by the Reasonably Foreseeable Development Scenario and would hinder further GRSG conservation efforts.

  Response: The allocative change from Avoidance to Open for major ROWs in GHMA is consistent with rangewide and CA BLM allocative direction and rationale. PHMA allocative decisions and predator management are protective of GRSG. Predator management in GHMA is consistent with that of PHMA and reduces a primary impact in areas that are less likely to be occupied than PHMA.

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